

# Stormwater Capacity Analysis for Taylor Run, City of Alexandria, Virginia

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DATE: February 2016  
PROJECT NUMBER: 240027

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## Attachments

- A     Methodology for Identifying Public vs. Private Structures: August 6, 2009, Meeting Summary
- B     Hydrologic Model Schematic and Parameters
- C     Inlet Capacity Results
- D     Detailed Model Results

## Executive Summary

The City of Alexandria, Virginia, has experienced repeated and increasingly frequent flooding events attributable to old infrastructure, inconsistent design criteria, and perhaps climate change. The purpose of the stormwater capacity analysis project is to provide a program for analyzing storm sewer capacity issues, identifying problem areas, developing and prioritizing solutions, and providing support for public outreach and education. The project is being implemented in phases by watershed. The watersheds include Taylor Run, Four Mile Run, Holmes Run, Cameron Run, Hooffs Run, Strawberry Run, Potomac River, and Backlick Run.

This technical memorandum focuses on hydrologic and hydraulic analyses of Taylor Run watershed using xpswmm. It summarizes the storm sewer system in the Taylor Run watershed, the model development

steps, data sources and gaps, model assumptions, and the results, focusing on the capacity deficiencies identified in the model. These deficiencies will be used as a basis for identifying and prioritizing problem areas and solutions during the next phase of the project.

The objective of this phase of the study is to identify the deficient stormwater collection system elements in Taylor Run during a 10-year return period rainfall event. During the Hooffs Run watershed modeling task, three different design storm scenarios and one historic event were investigated: the City's existing intensity-duration-frequency (IDF) curve, the updated IDF curve using the full record of historical precipitation data (1949 to 2008), the IDF curve projected for the year 2100 using various climate change scenarios, and the June 25–27, 2006 storm event. The results of the Hooffs Run analyses showed that the existing IDF design hyetograph was the most conservative of the design storms (produced the greatest amount of stormwater runoff and flooding), and produced a similar amount of the system flooding to the results from the historic event. Consequently, this scenario was chosen to be used to complete the stormwater capacity analysis for the other watersheds.

The Taylor Run watershed has a drainage area of 1.36 square miles located near the middle of the City; bounded on the north by Arlington County and on the south by Cameron Run. The watershed is drained by Taylor Run and its tributaries from north to south and discharges into Cameron Run near the intersection of Telegraph Road and the Capital Beltway. The Taylor Run storm sewer system model is composed of 1,006 nodes and 982 segments of sewer pipes totaling 12.6 miles and representing 83% of the total storm sewers in the watershed. The hydraulic model predicts that Taylor Run storm sewer system is experiencing capacity deficiencies at several areas within the watershed.

The model results show that 27 percent of the analyzed pipes flood the ground surface, 17 percent have a hydraulic grade line within 2 feet of the surface, and 18 percent surcharge above the crown of the pipe. Comparing the peak runoff to the estimated inlet capacity of each catchment indicates that 48 percent of the catchments in the model may have insufficient inlet capacity. Maps and profiles of flooding areas are presented in this technical memorandum to assist in locating problem areas and understanding the capacity deficiencies of the drainage system.

The hydraulic modeling results presented in this memorandum should be reviewed with the understanding that several assumptions were made to fill data gaps, primarily assumptions of inverts in pipes with diameters less than 24 inches.

## Project Introduction

The City of Alexandria, Virginia, (City) has experienced repeated and increasingly frequent flooding events attributable to old infrastructure, inconsistent design criteria, and perhaps climate change. The purpose of this project is to provide a program for analyzing storm sewer capacity issues, identifying problem areas, developing and prioritizing solutions, and providing support for public outreach and education. The project is being implemented by watershed. The watersheds include Hooffs Run, Four Mile Run, Holmes Run, Cameron Run, Taylor Run, Strawberry Run, Potomac River, and Backlick Run.

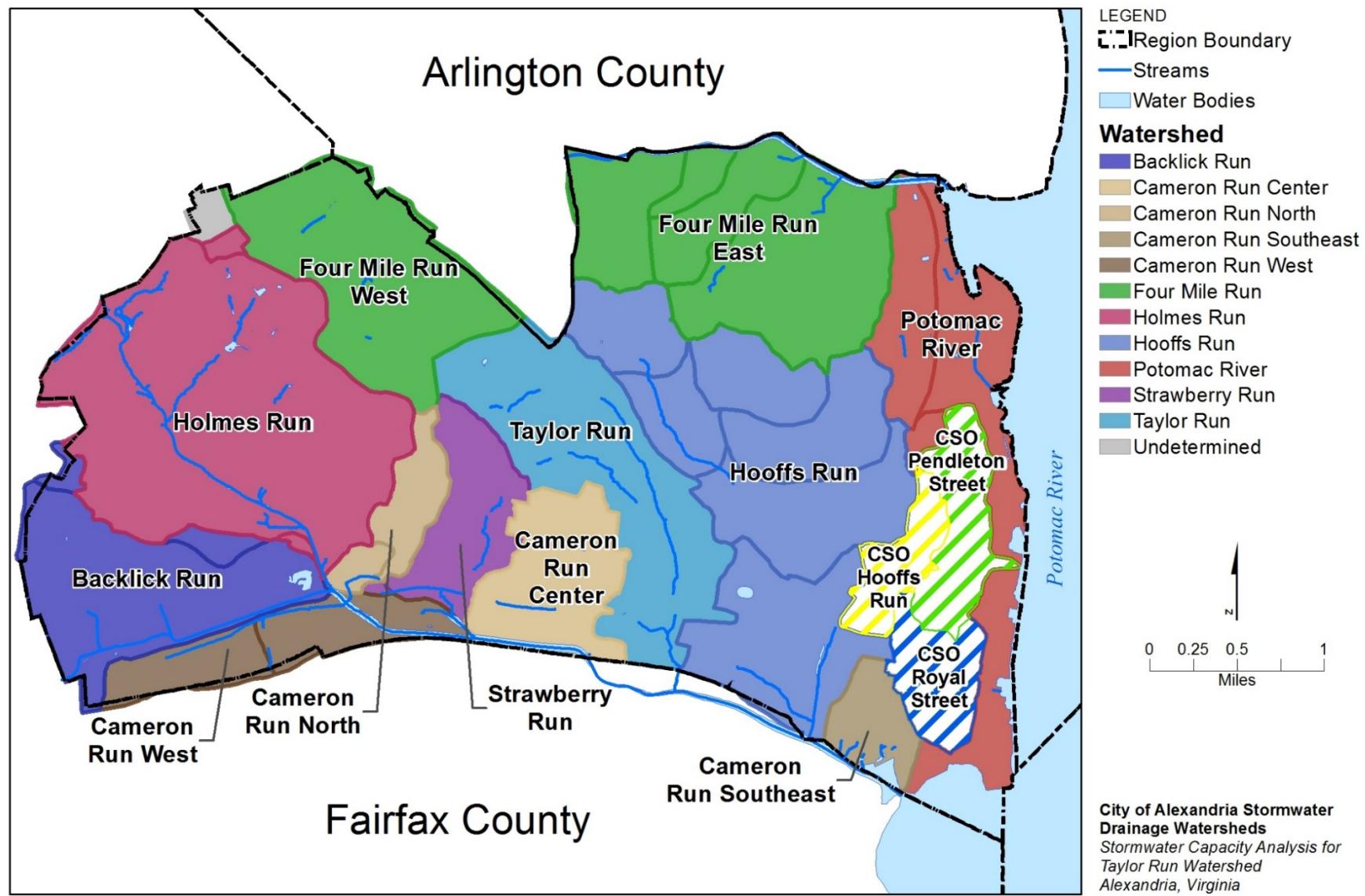
The purpose of this task is to conduct stormwater capacity analysis for the City's existing stormwater collection system within the Taylor Run watershed. Figure 1 presents the various drainage sewersheds for the City of Alexandria.

This technical memorandum describes the methodology and results of the stormwater capacity analysis for the stormwater collection system in the Taylor Run watershed identified in Figure 1. Subsequent memorandums will describe the results for remaining watersheds in the City.

FIGURE 1

## Stormwater Drainage Watersheds

City of Alexandria Storm Sewer Capacity Analysis – Taylor Run





## Task 2 Objectives

The objective of this phase of the study was to identify the deficient stormwater collection system elements during a 10-year return period storm event.

The stormwater collection system elements include the following:

- Closed conduits, such as gravity mains (storm drains) and culverts
- Open channels, such as streams and trapezoidal channels that connect two pipe systems
- Drainage inlets and junctions, such as roadside curb inlets, manholes, catch basins, ponds
- Flow regulating structures, such as weirs, orifices, and tide gates

## Description of Existing Stormwater Collection System

Taylor Run has a drainage area of 1.36 square miles that is subdivided into 309 catchments for modeling purposes. The watershed is located near the middle of the City and bounded on the north by Arlington County. The natural drainage of the Taylor Run watershed consist of Taylor Run stream and its two unnamed tributaries (Trib 1.13 and Trib .37 per 2007 USACE Cameron Run watershed Study). The stream system and a few drainage ditches coupled with the system of storm sewers drain the Taylor Run watershed from north to south and discharge into Cameron Run near the intersection of Telegraph Road and the Capital Beltway.

The City maintains a geodatabase of all stormwater collection system elements, including conduits and drainage junction points. A checked-out copy of the Taylor Run geodatabase received from the City on 12/22/11 was used as the basis of the stormwater collection system model. The geodatabase was thoroughly reviewed and updated with new survey data, for conduits with diameter 24 inches and larger, collected during a Field Survey and Condition Assessment task. In some locations for which survey data were not available, the City's plan and as-built drawings were used to fill data gaps and verify system connectivity. The updated geodatabase was submitted to the City for incorporation (i.e., checked-in) into the City-wide stormwater collection system geodatabase. The updated stormwater collection system in the Taylor Run watershed contains the following elements:

- 1,158 pipe segments representing 78,947 linear feet of gravity mains (storm drains). Pipe diameter/width varies from 6 to 96 inches for circular, rectangular, and elliptical.
- 1,266 drainage junction points:
  - 35 catch basins
  - 31 culvert points
  - 738 drainage inlets
  - 274 manholes
  - 120 nodes (blind connections)
  - 67 pipe inlet/outlets
  - 1 control devices
  - 0 storage basins (stormwater ponds)

In addition to the structures represented in the stormwater collection system geodatabase, a network of natural streams and open channels convey storm flows in the City's drainage network. These streams are represented separately in the City's geodatabase in a stream feature class.

Methods and results from the analysis of all 312 catchments are presented in the following sections.

### Public/Private and Disconnected Drainage Systems

The City's geodatabase includes structures that are privately owned. Since the hydraulic analyses and identification of capacity deficiencies include only the public facilities as per direction from the City, the structures located in privately owned parcels were identified and excluded from the model. The methodology that was used to accomplish this is documented in the meeting minutes presented in Attachment A.

Small disconnected drainage systems were also identified and excluded from the model database due to lack of accurate information to connect them to the main drainage system. Despite survey and review of available drawings and documents, small isolated systems remained in the database. These systems were identified and removed from the model. The disconnected systems consisted of only a few structures and did not connect to any larger downstream systems.

## Modeled and Analyzed System

A copy of the updated geodatabase was used as the starting point for the hydraulic model. The entire system was modeled as clusters of smaller systems that outfall at Taylor Run. In most parts of the system, the model does not extend beyond the storm sewer outfalls to the main Taylor Run stream channel; hence there was no need to model the natural channel reaches of the main stem of Taylor Run. One of the major tributaries to Taylor Run (Trib. 1.13) that re-enters the storm system at the intersection of Francis Hammond Parkway and Janney's Lane was modeled. Figure 2 shows the reach of the Tributary (Trib 1.13) of Taylor Run that was modeled.

The main stem of Taylor Run enters a double barreled culvert at Telegraph Road (shown in Figure 2). This culvert also has pieces of storm systems coming in at 7 different nodes. It is important to understand the hydraulics of the culvert to properly model the adjacent storm systems; therefore the culvert was included in the model. The flow entering the culvert from the stream was approximated by modeling the entire Taylor Run watershed upstream of the culvert as a single catchment with the properties of the entire drainage area. Two stream segments were included in the model upstream of the culvert to properly evaluate entrance losses into the culvert. The peak flow obtained for this equivalent area was compared with the 10-year peak flow obtained from the USACE HEC-RAS model for the same location. The xpswmm model produced 1.5 times higher peak flow, and the HGL is still within the culvert. Given the conservative nature of the 15-minute SCS hyetograph peak of 1.5 in/hr used for this study with xpswmm. However the HEC-RAS analysis used a 5-minutes intensity and also reports a 15-minute peak intensity of 1.16 in/hr. that would produce a lower peak flow than the 15-minutes intensity of 1.5 in/hr used in this study. Hence the resulting higher peak with xpswmm was considered a comparable result.

The modeled system only represents an analysis of approximately 20 percent of the inlets as per the scope of work. Since drainage areas were not computed for each inlet in the model, there were several instances where pipes did not have corresponding flows. Pipes that did not receive flow were effectively eliminated from the analysis. Only results pertaining to the analyzed system are included in this report. Also there was one pond identified at the Episcopal High School grounds. This pond was not modeled because it is located at the upstream end of the sewer system. There is also a 5-acre area at the southeast corner of the Taylor Run watershed that was not modeled. This area, which covers a swath of the railroad tracks east of Telegraph Road, does not have any sewer lines and does not appear to drain anywhere within the Taylor Run watershed.

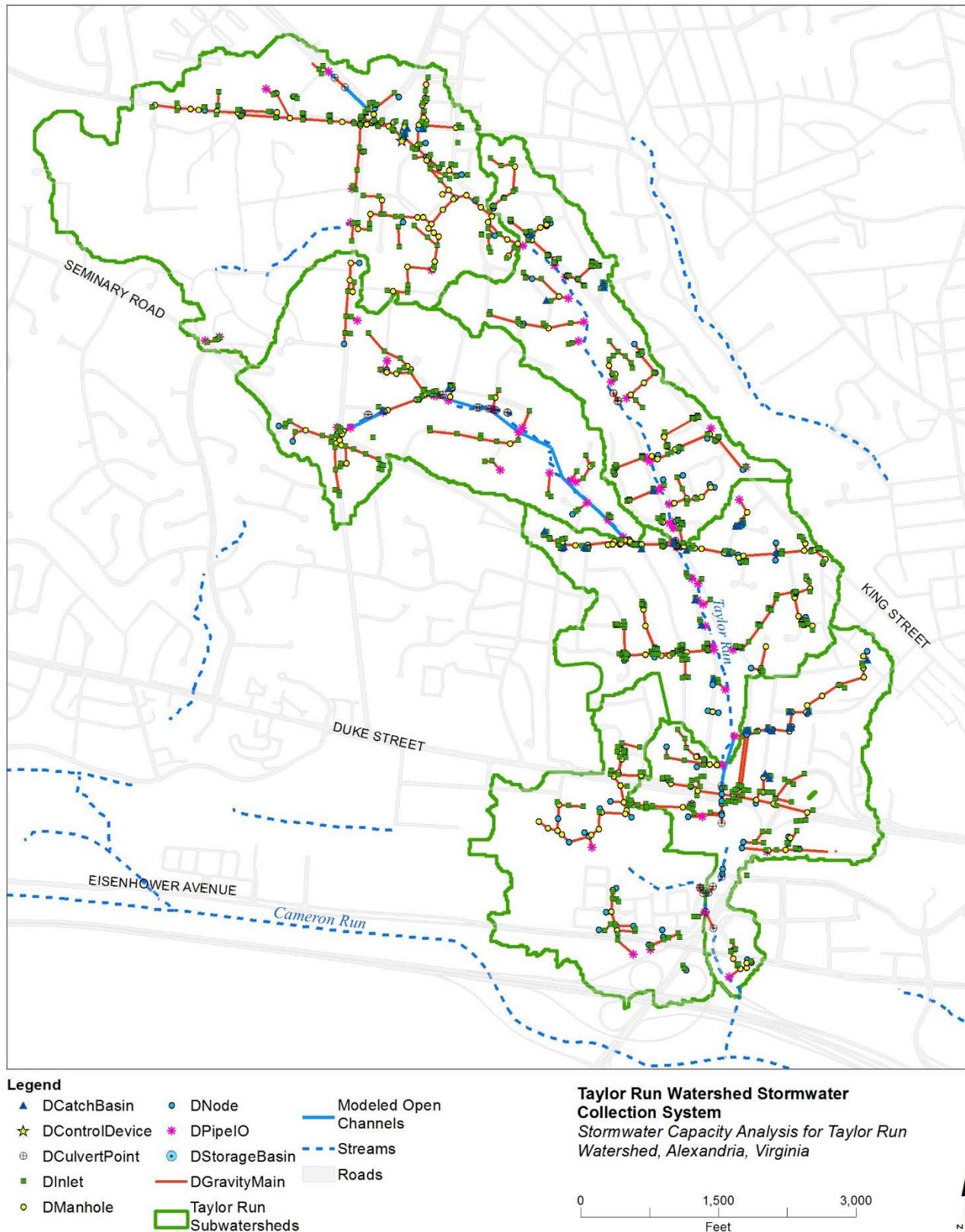
The analyzed system includes the following elements:

- 713 pipe segments representing 58,241 linear feet of gravity mains (storm drains), or 74% of the total length of storm drains in the geodatabase. Pipe diameter/width varies from 8 to 96 inches for circular, rectangular, and elliptical. (Additional 269 pipe segments upstream of model load points)
- 741 drainage junction points:
  - 18 catch basins
  - 6 culvert points
  - 386 drainage inlets
  - 234 manholes
  - 70 nodes (blind connections)
  - 32 pipe inlet/outlets
- 14 open channel segments

Figure 2 shows a map of the existing stormwater collection system in the Taylor Run watershed.

FIGURE 2

Existing Stormwater Collection System, Taylor Run Watershed, City of Alexandria, Virginia  
*City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

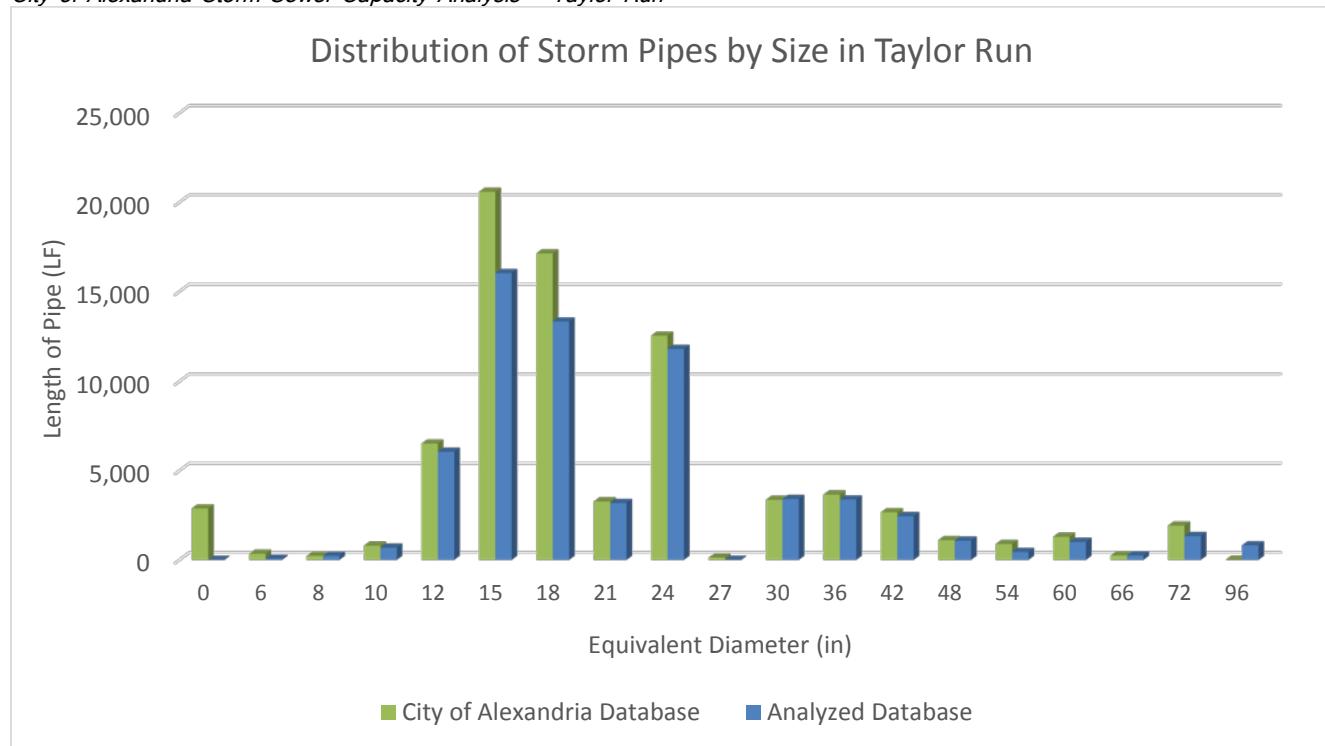




The distribution by size of storm drains in the City's Taylor Run geodatabase and the storm drains analyzed in the Taylor Run model are presented in Figure 3. The total linear footage of 96 inch pipes is greater in the analyzed database because this is the width of double barreled box culvert which was not depicted as having diameter in the database.

FIGURE 3

Distribution of Storm Drains by Size, Taylor Run Watershed, City of Alexandria, Virginia  
City of Alexandria Storm Sewer Capacity Analysis – Taylor Run



## Data Gaps

The available data for the storm drains in the Taylor Run watershed were evaluated for data quality and completeness. The City's database was updated with data collected from the field survey. However, the field survey included only storm sewer structures connected to pipes with diameter 24 inches or greater (about 40% of the modeled system, which does not include private or disconnected structures). Sixty percent of the modeled system has sewers less than 24 inches and was not surveyed as part of this study; hence the existing data in the City's most current database was used for modeling the portions of system that were not surveyed.

Some of the structures in the City's most current database were missing data points that are critical for modeling storm sewer systems. Examples of data gaps include missing node rim and/or invert elevation and pipe sizes and inverts. A typical missing pipe invert occurs at a location with a blind pipe connection where there is no access manhole. In Taylor Run several outfall locations were missing inverts, and could not be accessed for survey. The data gaps needed to be filled to develop a complete model. The following approaches were adopted to fill the missing data:

- Missing data were inferred from the available data, if applicable. For example, a missing pipe size was assumed to equal the downstream pipe diameter.
- Pipe diameters at the most-upstream inlets were assumed to be 12 inches.
- A 6-inch-depth to crown was assumed for the most upstream inlets and DNodes.
- Interior point feature invert elevations were estimated by assuming that pipe slope is constant.

- At outfalls and some blind connections to upstream private systems, the slope from the next upstream or downstream pipe was used to extrapolate an invert for the outfall or blind connection.
- Limited data available in the GIS for ponds and the outlet control structures were supplemented with data from as-built plans.

In addition to filling in missing data, the data were reviewed for data quality and validity. Assumptions were made when the available data were not reasonable (e.g., a pipe crown was above the rim of a manhole). Additional information regarding the types of assumptions made to complete the hydraulic model are provided in the technical memorandum *Summary of Data Gaps and Assumptions in the Hooffs Run Watershed* (CH2M HILL, 2012), which was provided to the City in October 2012. The same approaches were applied to fill data gaps and resolve unreasonable data in the GIS data for the Taylor Run watershed, except where field survey data are available.

## Modeling Approach

The Taylor Run watershed was analyzed using commercially available and public domain computer models that are industry accepted and widely used. The public domain software, ArcHydro Tools 9.2 and HEC-GeoHMS (ArcGIS version), were used to aid delineation of catchments and to estimate hydrologic parameters, such as catchment drainage area, slope, and longest flow path. Other hydrologic parameters, such as catchment width and percent impervious, were estimated in ArcGIS after completing the catchment delineation. The private domain software xpswmm (version 2012) was used to simulate rainfall-runoff processes and the performance of the stormwater collection system. The xpswmm software is widely used and industry-accepted commercial stormwater management software. The core simulation engine is based on the USEPA stormwater management model (SWMM) engine.

The City of Alexandria provided the required data listed below:

- TaylorRun\_Dsewer\_112211.gdb, a checked-out copy of the Taylor Run geodatabase of the stormwater collection system
- Spring 2008 DVD, City GIS data (shape files and orthophotography) such as topographic data and land uses
- Spring 2011 DVD, City GIS data (geodatabase and orthophotography) such as topographic data and land use

## Hydrologic Modeling

The hydrologic modeling required two major types of inputs:

- **Hydrologic parameters:** Delineation of catchments and computation of hydrologic parameters such as drainage area, slope, width, and percent impervious for each catchment.
- **Design Hyetographs** - Development of a 24-hour synthetic rainfall distribution for the 10-year design storm event

## Hydrologic Parameters

Hydrologic parameters were estimated using ArcHydro and HEC-GeoHMS.

The ArcHydro tools are a set of public domain utilities developed jointly by the Center for Research in Water Resources (<http://www.crwr.utexas.edu>) of the University of Texas at Austin, and the Environmental Systems Research Institute. These tools provide functionalities for terrain processing, watershed delineation, and attribute management. They operate on top of the ArcHydro data model in the ArcGIS environment. The model uses the digital elevation model (DEM) of the subject watershed to compute hydrologic parameters. The “burning in” technique allows the user to impose the drainage system on the terrain to better produce the catchment boundaries.

HEC-GeoHMS is geospatial hydrologic modeling software developed and maintained by the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers. The model allows users to visualize spatial information, perform spatial analysis, delineate subbasins, and estimate watershed hydrologic parameters. (U.S. Army Corps of Engineers, 2003)

In this study, 2-foot contour data provided by the City were used to create a DEM of the watershed. ArcHydro tools were used to delineate the catchments (referenced as subbasins in the tools). HEC-GeoHMS was used to compute hydrologic parameters, such as drainage area, slope, and longest flow path for each catchment. Width was derived using the catchment drainage area and longest flow path using the equation, width = (area/longest flow path). Percent impervious was estimated in ArcGIS using the delineated catchments and impervious shapefiles provided by the City.

Updated subwatershed and watershed boundaries were developed using the catchment layer developed during the modeling process and returned to the City. Schematics of the hydrologic model for each subwatershed are presented in Attachment B. The schematics show the catchment ID, delineated boundaries, and longest flow path for each catchment as well as the DEM of the Taylor Run watershed. The hydrologic parameters for each subwatershed are also presented in Attachment B. The following are the major drainage characteristics for the Taylor Run watershed, based on the hydrologic model:

- Total drainage area is 1.36 square miles (868 acres)
- Drainage area divided into 6 subwatersheds containing 309 catchments, 284 of which are included in the model<sup>1</sup>
- 35 percent of the drainage area is impervious
- Average catchment area is 2.8 acres
- Average catchment slope is 0.07 feet/feet
- Average catchment width is 167 feet

### **Design Hyetograph**

The 24-hour synthetic rainfall distribution for the 10-year design storm event was developed based on rainfall data from the existing intensity-duration-frequency (IDF) curve for the 10-year return period for Alexandria (City of Alexandria, 1989). Time of concentration values were computed for several inlets in the Hooffs Run pilot subwatershed and the Four Mile Run priority subwatershed. Based on these results, the peak rainfall intensity was selected from the IDF curve, based on a 15-minute time of concentration. A variable time interval approach was used to generate the design hyetograph. The design hyetograph was developed to yield maximum rainfall intensity at the approximate center of the 24-hour storm. The 24-hour rainfall total is 5.04 inches, and the peak intensity is 5.9 in./hr. Table 1 and Figure 4 present the existing 10-year, 24-hour design hyetograph.

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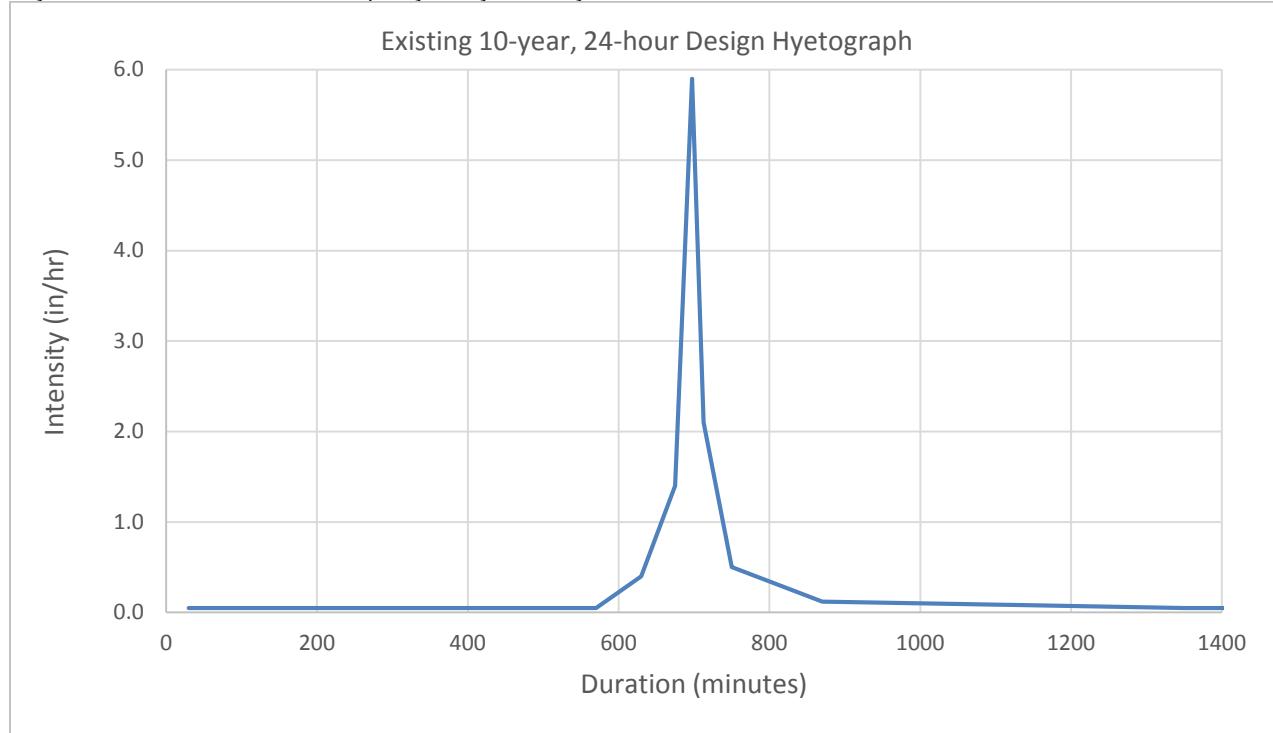
<sup>1</sup> The xpswmm model includes 284 of the 309 catchments delineated in the Taylor Run watershed; 25catchments drain directly to the stream or to small systems that are not included in the model and discharge directly to the stream.

TABLE 1

**Existing 10-year 24-hour Design Hyetograph Data***City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

Start Time (minutes)	Duration (minutes)	Absolute Rainfall Depth (inches)	Intensity (in/hr)
0	60	0.05	0.05
60	60	0.05	0.05
120	60	0.05	0.05
180	60	0.05	0.05
240	60	0.05	0.05
300	60	0.05	0.05
360	60	0.05	0.05
420	60	0.05	0.05
480	60	0.05	0.05
540	60	0.05	0.05
600	60	0.40	0.40
660	30	0.70	1.40
690	15	1.475	5.90
705	15	0.525	2.10
720	60	0.50	0.50
780	180	0.36	0.12
960	360	0.48	0.08
1320	60	0.05	0.05
1380	60	0.05	0.05

FIGURE 4

**Existing 10-Year 24-Hour Design Hyetograph***City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

## Simulation of Stormwater Runoff

The xpswmm 2012 (Service pack 1) software was used to simulate rainfall-runoff processes from the Taylor Run watershed. The hydrologic parameters such as area, slope, width, and percent impervious for each of the 312 catchments were estimated using ArcGIS, ArcHydro Tools 9, and ArcGIS version of HEC-GeoHMS, as described earlier. These hydrologic parameters were used as input to the RUNOFF module of the xpswmm model. The design hyetograph for the 10-year return period was also used as input to the RUNOFF module. The U.S. Environmental Protection Agency (USEPA) SWMM Runoff Non-linear Reservoir Method was used to simulate the stormwater runoff from each catchment in response to the hyetograph.

## Hydraulic Modeling

The xpswmm model was used to simulate the hydraulic performance of the stormwater collection system during a 10-year design storm event. Model input data included the following physical data:

- Junctions (inlet, manhole, nodes, etc.), such as invert and rim elevations
- Closed and open conduits, such as invert elevations, size, shape, material, and length
- Stormwater storage ponds, such as stage-storage relationships
- Control devices (orifices, weirs, etc.)

The data for the stormwater collection system were primarily imported into the model from the geodatabase provided by the City. This geodatabase was updated with survey data for structures that are attached to pipes that are 24 inches or more in diameter and considered public. Private structures were not modeled, so any private runoff was applied to the next downstream model load point. All elevations (invert and rim) recorded in the geodatabase of the stormwater collection system are in NAVD 88 datum; therefore the xpswmm model was built in NAVD 88.

Entrance or exit loss coefficients were applied to pipes at connections where pipe size significantly increased or decreased. An exit loss coefficient of 0.15 was applied to the smaller (upstream) pipe where the downstream pipe was 2 or more times the size of the upstream pipe. An entrance loss coefficient of 0.1 was applied to the smaller (downstream) pipe where the downstream pipe was half the size, or smaller, of the upstream pipe.

In most parts of the system, the model does not extend beyond the storm sewer outfalls to the main branch of Taylor Run. The entire system was modeled as several smaller systems with individual outfalls at Taylor Run. There were a total of 23 outfalls; each representing a small upstream storm sewer system and each was assumed to have a free outfall downstream boundary condition. This was considered to be appropriate since the area draining to each outfall was less than 60 percent of the total drainage area to that point in the main stem of Taylor Run; hence the peaks of the small systems are not coincident with the peak of Taylor Run at the outfalls. In addition, the invert of the outfalls were checked against the mean high high tide elevation and the topography at the outfall locations to confirm the outfalls were all elevated above the influence of the tide and baseflow.

The boundary condition for the double barrel culvert at Telegraph Road, carrying the main stem of Taylor Run, was considered separately. The invert of the culvert is well above the mean high high tide, eliminating any concern of tidal influence. The culvert carries 100 percent of the watershed to that point in the stream, and therefore it was compared against the USACE HEC RAS water surface elevations. The water surface level in the xpswmm model with a free outfall are above the HEC RAS predictions, therefore there was no need to add an additional boundary condition.

There are a few open channel reaches (e.g., road side swales, open channels connecting pipe systems, and stream reaches) within the Taylor Run watershed model. These were added to the model using the 2-foot contours from the City's GIS data. In addition natural channel stream reaches of the main Taylor Run tributary (Trib. 1.13) that enters the storm system at the intersection of Francis Hammond Parkway and Janney's Lane were modeled with cross sections derived from the USACE HEC RAS model. The short segment of the main stem upstream of the culvert was also based on USACE HEC RAS model.

The hydraulic modeling was performed to analyze the pipe capacities by loading the runoff directly into the nodes of the modeled storm sewer system. This approach does not model the flow restrictions caused by the surface inlets. The flow directly entering the collection system provides a conservative or “worst case” evaluation of pipe capacities.

## Model Results

Model results are summarized in the following sections.

### Hydrologic Model Results

Peak discharge for each node where overland flow was loaded into the hydraulic model is provided in Attachment C.

### Inlet Capacity Results

Inlet capacity was evaluated outside xpswmm due to limitations in the modeling software’s capabilities. Details on the evaluation of the options for modeling inlet capacity are provided in *Inlet Capacity Analysis for City of Alexandria Storm Sewer Capacity Analysis* (CH2M HILL, 2012), which was provided to the City in September 2012. The spreadsheet evaluation multiplies the maximum capacity of a single inlet, estimated to be 3.25 cfs based on an assumed standard gutter spread and road cross-section, by the total number of catch basins and inlets draining to a single runoff input point, the location where overland flow was plugged into the hydraulic model. The model has flow loaded into 275 locations with an average of 2.4 inlets per runoff input point. The estimated capacity for each load point was compared to the peak runoff generated in the RUNOFF module of xpswmm to determine whether the catchment has sufficient inlet capacity. Results suggest that about 48 percent or 132 of 275 of the model load points may be experiencing inlet capacity deficiencies.

The total inlets and catch basins count is based on the City’s GIS data for Taylor Run watershed, including all private and disconnected inlets and catch basins. The City’s GIS data does not include all private structures in the Taylor Run watershed since they are not always included in survey efforts. This effectively underestimates the City’s available inlet capacity in this analysis. Inlet capacity results are presented in detail in Attachment C.

### Hydraulic Model Results

Model results for the pipes and stream segments are summarized in the following sections. Detailed results are presented in Attachment D.

#### Pipe Capacity

The conveyance capacity of the existing stormwater collection system during the storm event listed above was evaluated based on three criteria, listed in order of decreasing severity:

- If the hydraulic grade line (HGL) rose above the ground surface, the structure was considered flooded.
- If the HGL rose to within 2 feet of the ground surface, the structure was considered to have insufficient freeboard.
- If the HGL rose above the crown of the pipe but was more than 2 feet from the ground surface, the structure was considered surcharged.

Pipes were evaluated for these conditions at the upstream end. In some cases the water surface was within 2 feet of the ground surface, but within the pipe (not surcharging), because the crown of the pipe was less than 2 feet from the ground surface. In those cases, the pipes were not included in the “insufficient freeboard” category.

Additional details on the results are presented in the following section. The pipes with flooded, insufficient freeboard and surcharged conditions are summarized in Table 2 and 3. Figure 5 shows the location of pipes experiencing flooding, insufficient freeboard, and surcharged conditions in Taylor Run watershed. Profiles of

pipes displaying conditions of the pipes along the main storm sewer line within the Taylor Run watershed are provided in Attachment D. The profiles display the following:

- Vertical cross-sectional view of the conduits, including the invert and crowns. They also illustrate the flow conditions such as partially full, full, or surcharged.
- Water surface elevation in the conduit (i.e., HGL)
- HGL in junctions such as manholes, inlets, and nodes
- HGL above the conduit crown (surcharged conditions)
- HGL above the ground (flooding)

Note that the profiles presented only show a snapshot of the system during the model simulation. These profiles will not always show the most severe flooding at each location. For example, the profile may not show the flooding symbol at a location even though surface flooding does occur either before or after the snapshot of the profile was taken.

The detailed model results are presented in tabular format in Attachment D. The results presented in this memorandum should be reviewed with the understanding that flow data were not available for model calibration, and several assumptions were made to fill data gaps, primarily, assumptions about pipe invert where survey data were unavailable.

The model results presented in Table 2 show that 27 percent of the pipes flood the ground surface, 17 percent have a hydraulic grade line within 2 feet of the surface, and 18 percent surcharge above the crown of the pipe.

TABLE 2

**Watershed Modeling Results, Summarized by Pipe Size***City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

Equivalent Pipe Diameter (ft)	Sufficient Capacity			Surcharged			Insufficient Freeboard			Flooded		
	Count	Length (LF)	Percent of Total Length	Count	Length (LF)	Percent of Total Length	Count	Length (LF)	Percent of Total Length	Count	Length (LF)	Percent of Total Length
Less than 2.0	148	10,829	19%	60	4,466	8%	116	6,088	10%	143	11,218	19%
2.0 to 2.75	48	5,263	9%	38	3,931	7%	33	2,662	5%	24	2,952	5%
3.0 to 4.9	32	3,258	6%	16	1,806	3%	10	1,010	2%	12	1,543	3%
5.0 and above	23	2,486	4%	2	196	0%	3	347	1%	1	253	0%
<b>Total</b>	<b>251</b>	<b>21,836</b>	<b>37%</b>	<b>116</b>	<b>10,399</b>	<b>18%</b>	<b>162</b>	<b>10,107</b>	<b>17%</b>	<b>180</b>	<b>15,965</b>	<b>27%</b>

Notes: Table does not include pipes upstream of hydrologic load points in the model

Results are based on results at upstream end of pipe

ft = feet

LF = linear feet

TABLE 3

**Watershed Model Results, Summary by Capacity***City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

Capacity	Conduit Count	Conduit Length (LF)	Percent of Total Length	Duration (hr)				Volume (ft <sup>3</sup> ) <sup>a</sup>			
				Max.	Min.	Avg.	Total	Max.	Min.	Avg.	Total
Sufficient Capacity	251	21,836	37%	-	-	-	-	-	-	-	-
Surcharged <sup>b</sup>	116	10,399	18%	54.9	0.1	0.9	346	-	-	-	-
Insufficient Freeboard	162	10,107	17%	-	-	-	-	-	-	-	-
Flooded	180	15,965	27%	4.1	0.0	0.7	131	138,176	0.73	7,732	1,391,774

Notes: All results presented for pipe segments based on capacity at upstream end of pipe.

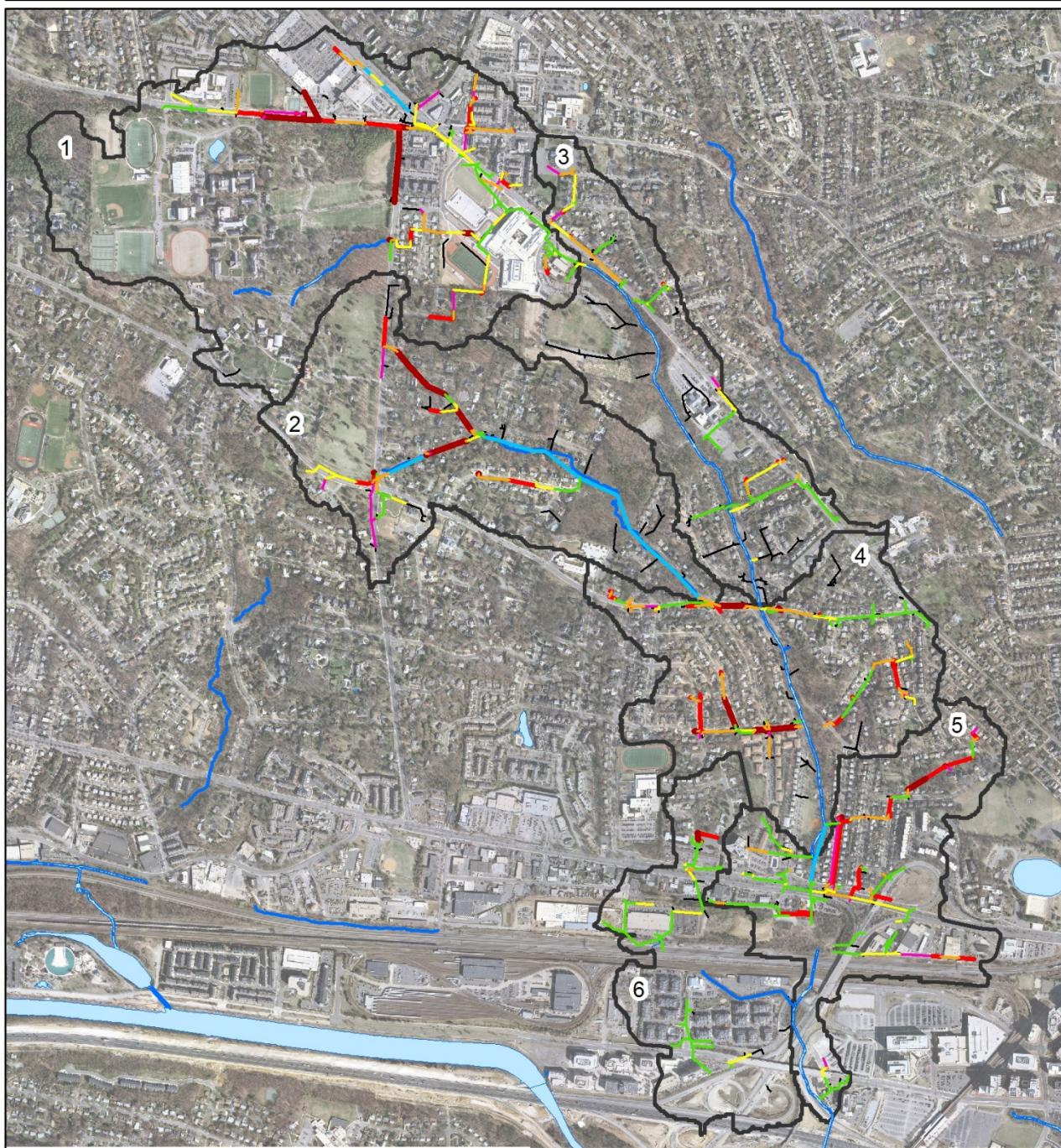
<sup>a</sup> Flooded volume<sup>b</sup> Duration of surcharged flow includes time during which conduits have insufficient freeboard or are flooded at the upstream end.ft<sup>3</sup> = cubic feet

hr = hour

LF = linear feet

FIGURE 5

Model Results – 10 Year Storm with Existing IDF, Existing Condition  
*City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

**Legend****Model Results Flood Volume (cu. ft.)**

Sufficient Capacity	0.01 - 1,000	Modeled Streams
Surcharged	1,000 - 10,000	City of Alexandria Streams
Insufficient Freeboard	10,000 - 140,000	Water Bodies
	Not Analyzed	Watershed
	(Private, disconnected, upstream of runoff input)	Note: Subwatershed number provided in upper corner of each subwatershed

**Taylor Run Model Results: Existing IDF, Existing Boundary Condition**

Stormwater Capacity Analysis for Taylor Run Watershed, Alexandria, Virginia

0 500 1,000 2,000  
Feet



CH2MHILL



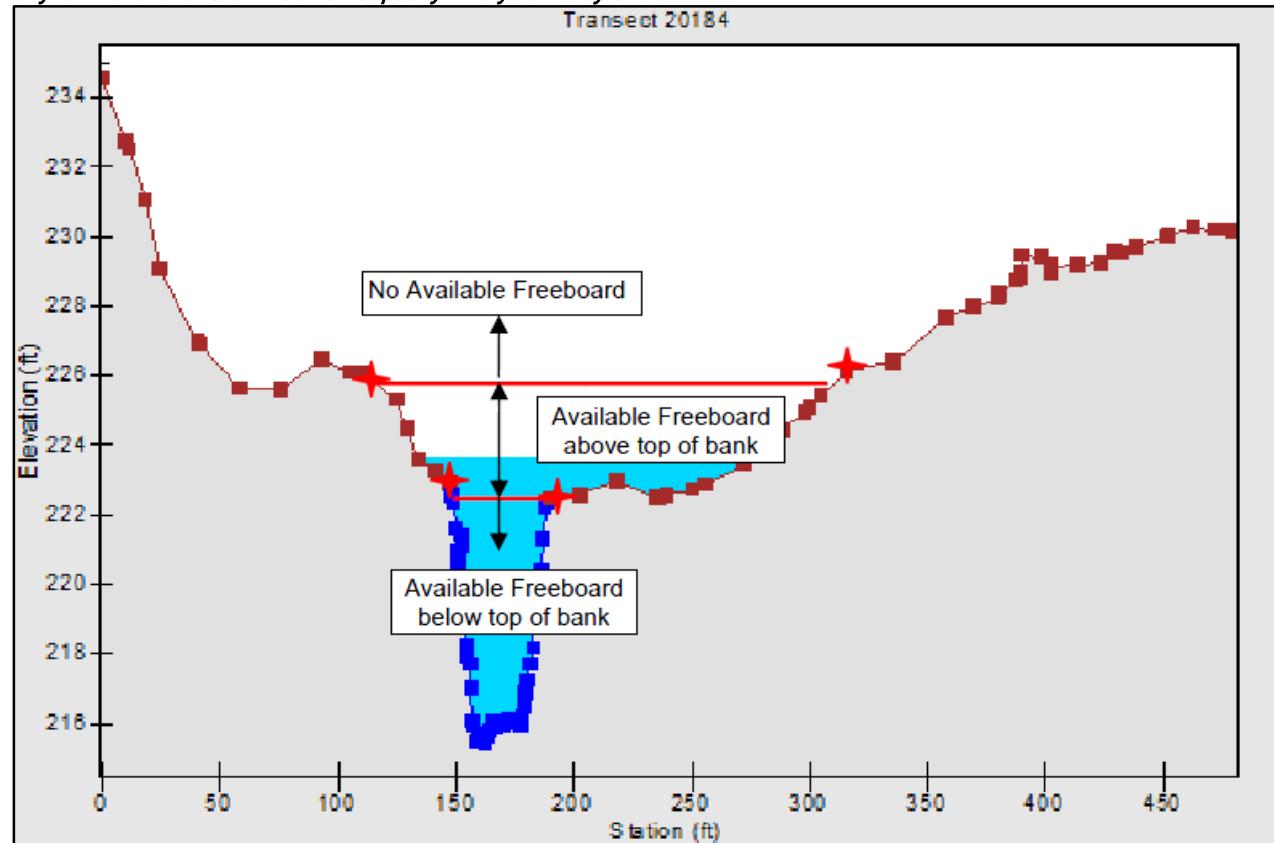
## Open Channel Results

Water surface levels generated by the model were compared to two points defined on each cross section: top of cross section and top of bank. These points are defined in Figure 6. The conveyance at each cross section was then defined as falling into one of three categories:

- No available freeboard: HGL above the top of cross section
- Available freeboard above top of bank: HGL above the top of bank yet remained below the top of cross section
- Available freeboard below top of bank: HGL below the top of bank

FIGURE 6  
Sample Cross Section

*City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*



Data on open channel segments were defined by the USACE HEC RAS model and most recent topographic data provided by the City of Alexandria. While included, open channels were not the focus of this modeling effort, and therefore the capacity of open channels will not be reported in terms other than those described above. Results for stream segments are summarized in Table 4.

TABLE 4  
Summary Results for Open Channels  
*City of Alexandria Storm Sewer Capacity Analysis – Taylor Run*

Scenario	Linear Feet of Stream		
	Available Freeboard Below Top of Bank	Available Freeboard Above Top of Bank	No Available Freeboard
Existing IDF, existing boundary conditions	0	2,149	848

The whole length of Trib 1.13, tributary to Taylor Run, from Key Dr. to Janney's La, was modeled because the natural channel stream is a link between two separate storm sewer systems. Nine natural channel sections were used to analyze Trib. 1.13, and the result of the analysis is presented in Table 4. The results indicate the 10-year storm will result in a water surface level that exceeds the top of bank but there is available freeboard within the cross-section for the majority of the length of Trib 1.13. Two sections totaling 848 linear feet may not have available freeboard within the cross-section to convey the 10-year storm.

## Summary

The hydraulic model predicts that a significant portion, about 62 percent, of the Taylor Run watershed is experiencing capacity related deficiencies during the 10-year, 24-hour design storm. The capacity deficiencies are prevalent in the northern section of the watershed, Subwatershed 1, which contains 35 percent of the pipes with capacity-related deficiencies. The model results show that 27 percent of the pipes flood the ground surface, 17 percent have a hydraulic grade line within 2 feet of the surface, and 18 percent surcharge above the crown of the pipe. Comparing the peak runoff to the estimated inlet capacity of each catchment indicates that 48 percent of the catchments in the model may have insufficient inlet capacity. Maps and profiles of flooding areas are presented in this technical memorandum to assist in locating problem areas and understanding the capacity deficiencies of the drainage system.

The hydraulic modeling results presented in this memorandum should be reviewed with the understanding that several assumptions were made to fill data gaps, primarily assumptions of inverts in pipes with diameters less than 24 inches.

## References

These documents were consulted in the preparation of this memorandum. Not all are cited in the text.

City of Alexandria. 1989. *Design and Construction Standards*. Department of Transportation & Environmental Services. July.

City of Alexandria. 2011. City of Alexandria GIS data. Spring.

CH2M HILL. 2009a. *Updated Precipitation Frequency Results and Synthesis of New IDF Curves for the City of Alexandria, Virginia*. Prepared for City of Alexandria Transportation & Environmental Services Department. May 1.

CH2M HILL. 2009b. Comparison of Model Hyetograph Generation and Hydrologic Computation Methods. Prepared for City of Alexandria Transportation & Environmental Services Department. July 14.

CH2M HILL. 2009c. *Sea Level Rise Potential for the City of Alexandria, Virginia*. Prepared for City of Alexandria Transportation & Environmental Services Department. June 12.

CH2M HILL. 2011. *Rainfall Frequency and Global Change Model Options for the City of Alexandria*. Prepared for City of Alexandria Transportation & Environmental Services Department. August 30.

CH2M HILL. 2012a. *Inlet Capacity Analysis for City of Alexandria Storm Sewer Capacity Analysis*. Prepared for the City of Alexandria Transportation & Environmental Services Department. September 12.

CH2M HILL. 2012b. *Summary of Data Gaps and Assumptions in the Hooffs Run Watershed*, Prepared for the City of Alexandria Transportation & Environmental Services Department. October 22.

CH2M HILL. 2016. *Stormwater Capacity Analysis for Hooffs Run Watershed, City of Alexandria, Virginia*. Prepared for the City of Alexandria Transportation & Environmental Services Department. February.

U.S. Army Corps of Engineers (USACE). 2003. *User's Manual, Geospatial Hydrologic Modeling Extension HEC-GeoHMS*. Hydrologic Engineering Center, the US Army Corps of Engineers. Version 1.1. December.

**Attachment A**

**Methodology for Identifying Public vs. Private  
Structures: August 6, 2009, Meeting Summary**

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# **City of Alexandria Storm Sewer Capacity Analysis Project – Task Order 1**

**Meeting, August 6, 2009 (2:30-3:00 pm)**

**ATTENDEES:**

Craig Perl/City of Alexandria  
Laurens van der Tak/CH2M HILL  
Cheri Salas/ CH2M HILL

FROM: Cheri Salas/CH2M HILL

DATE: August 7, 2009

PROJECT NUMBER: 383412

## **Meeting Purpose**

Review memorandum dated July 31, 2009, entitled Evaluation of modeling issues discussed during July 27, 2009 Progress Meeting

- Discuss results of initial public\private structure determinations
- Review initial evaluation of survey data quality
- Discuss altered approach to filling data gaps associated with missing inlet inverts

## **Meeting Review**

### **Private vs. Public Structures**

It was difficult to readily identify structures as private or public, based solely on the parcel layer because of potential errors in the structure locations. The memorandum includes several examples. Several of these include individual public structures that are upstream of larger private storm sewer areas. Craig will share these with Suzanne and others to confirm a path forward. It was agreed that regardless of the path forward on future sewersheds, we would not change the model for the pilot sewershed, but will not attempt to evaluate capacity limitations in the private areas. Craig will confirm which areas in the memo examples should be evaluated.

As we move into the remainder of Hooffs Run CH2M HILL will identify large areas of private sewers based on a broad visual review of the sewersheds, CH2M HILL will recommend a starting point for the hydraulic model (pour point for hydrologic basin) and allow the City to review the recommendations prior to beginning filling data gaps or modeling.

Stormwater ponds were discussed. These are mostly, if not all, private facilities; however they should have significant impact on the peak flows in the system. It was recognized that there is significant effort associated with obtaining the data for these ponds, and adding it to

the model. The one pond in the pilot sewershed was retrofitted since the as-built plans; therefore a site visit may be required to obtain appropriate outlet dimensions.

### **Survey Data Quality**

We do not foresee any significant data issues in the Pilot sewershed related to surveyed inverts; however it may be a bigger issue as we move into flatter sewersheds. This issue will be tabled until we move on to other sewersheds

### **Filling Data Gaps in Inlet Inverts**

As we were filling data gaps we recommended using a 1-foot depth to invert for all inlets for which the data were not available. In approximately 15 of the 153 inlets for which invert data were not available, the pipe diameter was larger than 12-inches, resulting in model errors. A revised approach of using the pipe diameter plus 6-inches as the assumed depth to invert is recommended, however it is unclear whether this approach will be appropriate for the locations in question. CH2M HILL will provide a Google Earth Map of these inlets and Craig will review, and possibly conduct field inspections. CH2M HILL will not continue modeling of the pilot shed until results of this review are received.

### **Action Items**

Craig will share July 31, 2009 memo with additional City staff and determine extent of capacity evaluation in pilot area. He will also confirm recommended path forward.

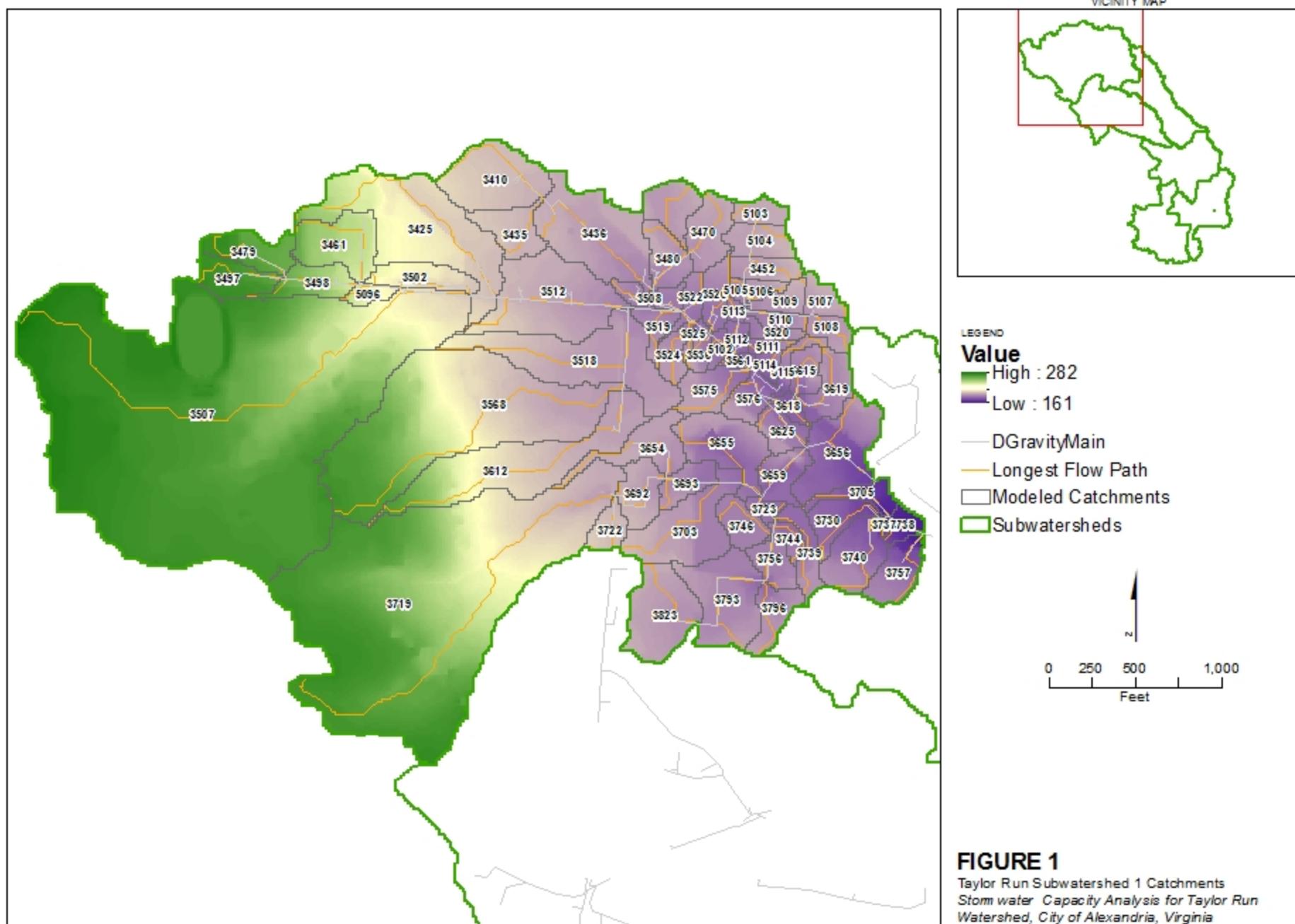
Craig will determine preferred approach to inclusion of stormwater ponds in the model.

Cheri will provide Google Earth maps of locations where a 1-foot depth to invert was not sufficient.

Craig will review these sites and provide input on an appropriate assumption moving forward.

**Attachment B**  
**Hydrologic Model Schematic and Parameters**

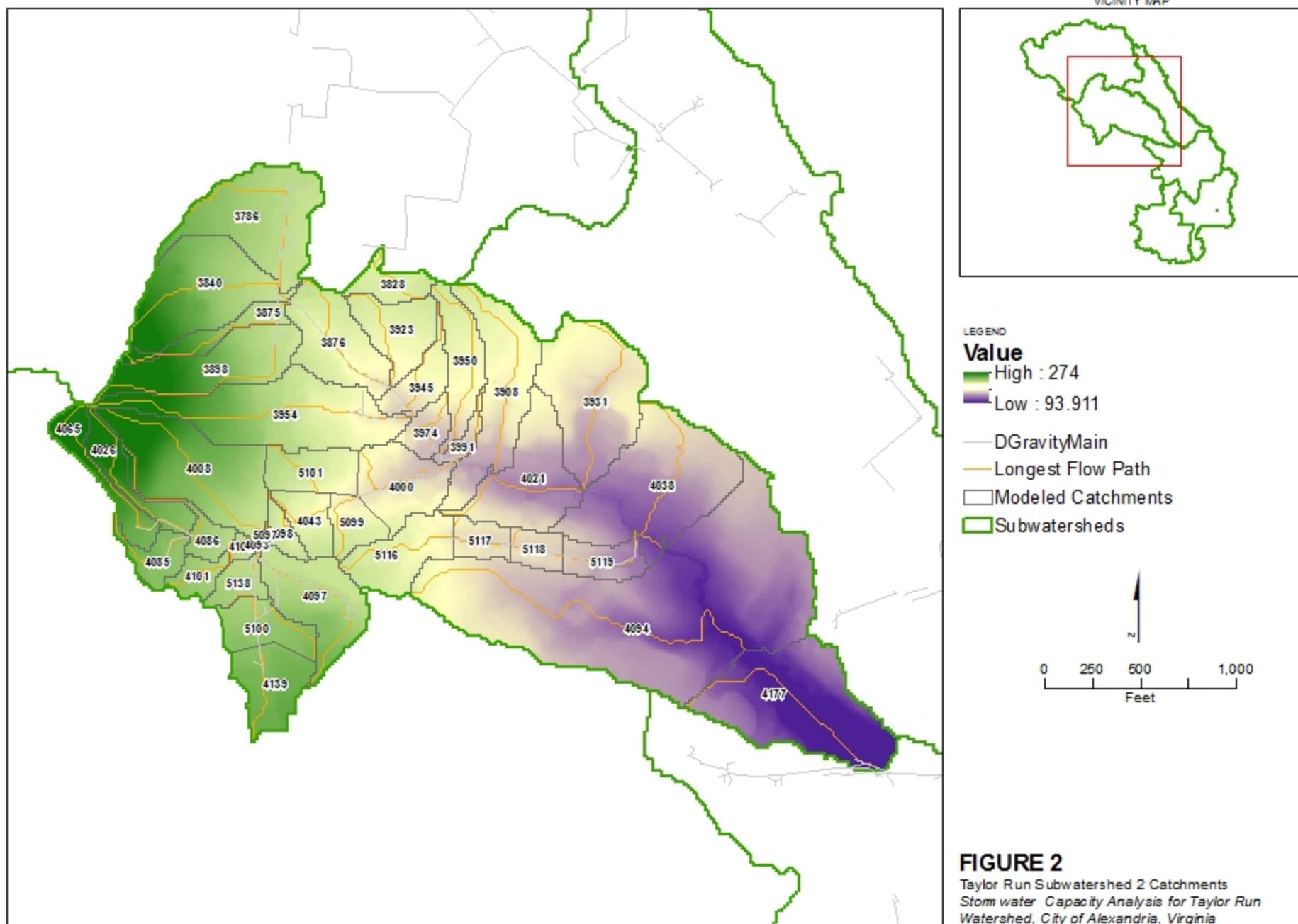




## **FIGURE 1**

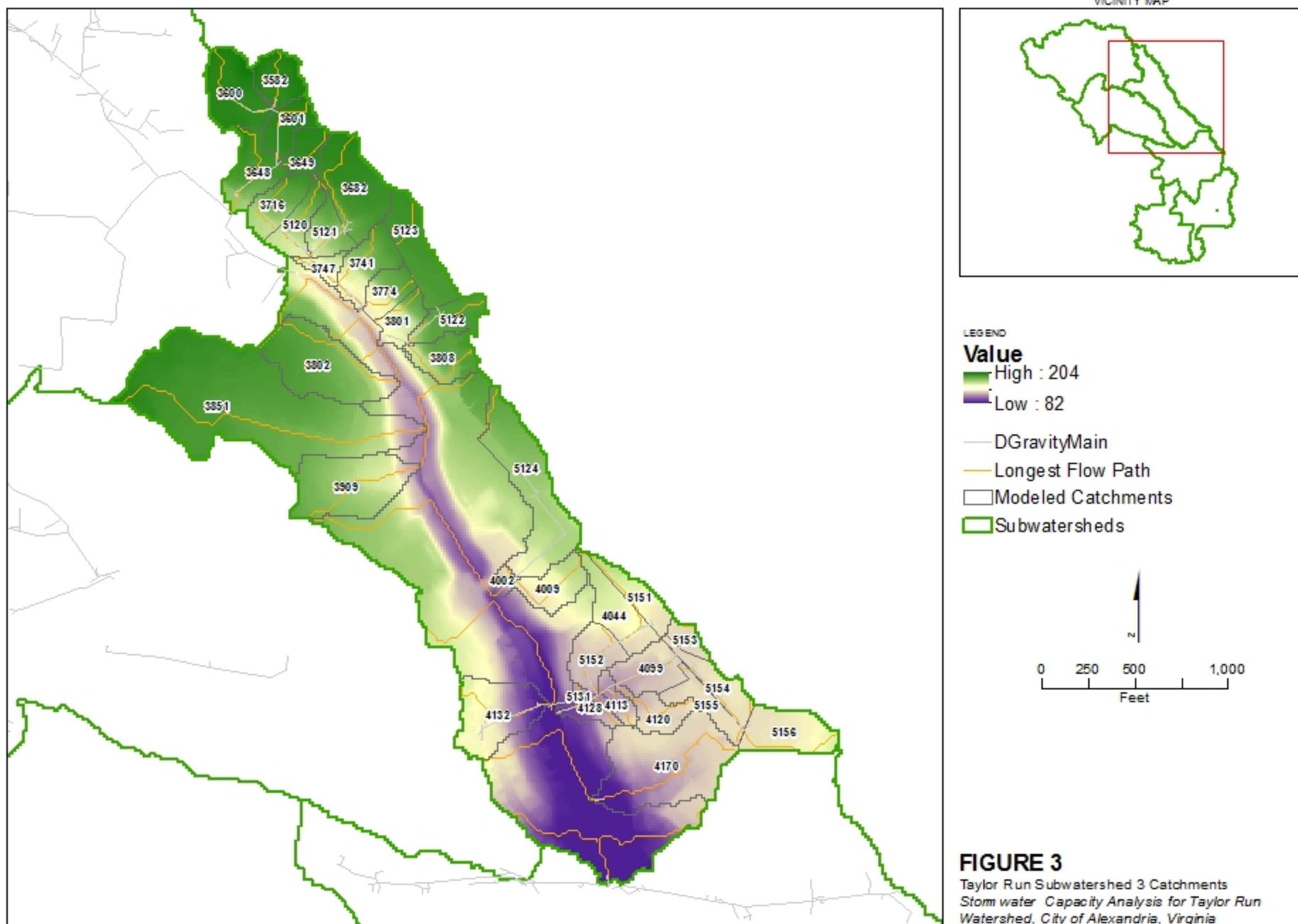
Taylor Run Subwatershed 1 Catchments  
*Storm water Capacity Analysis for Taylor Run  
Watershed, City of Alexandria, Virginia*





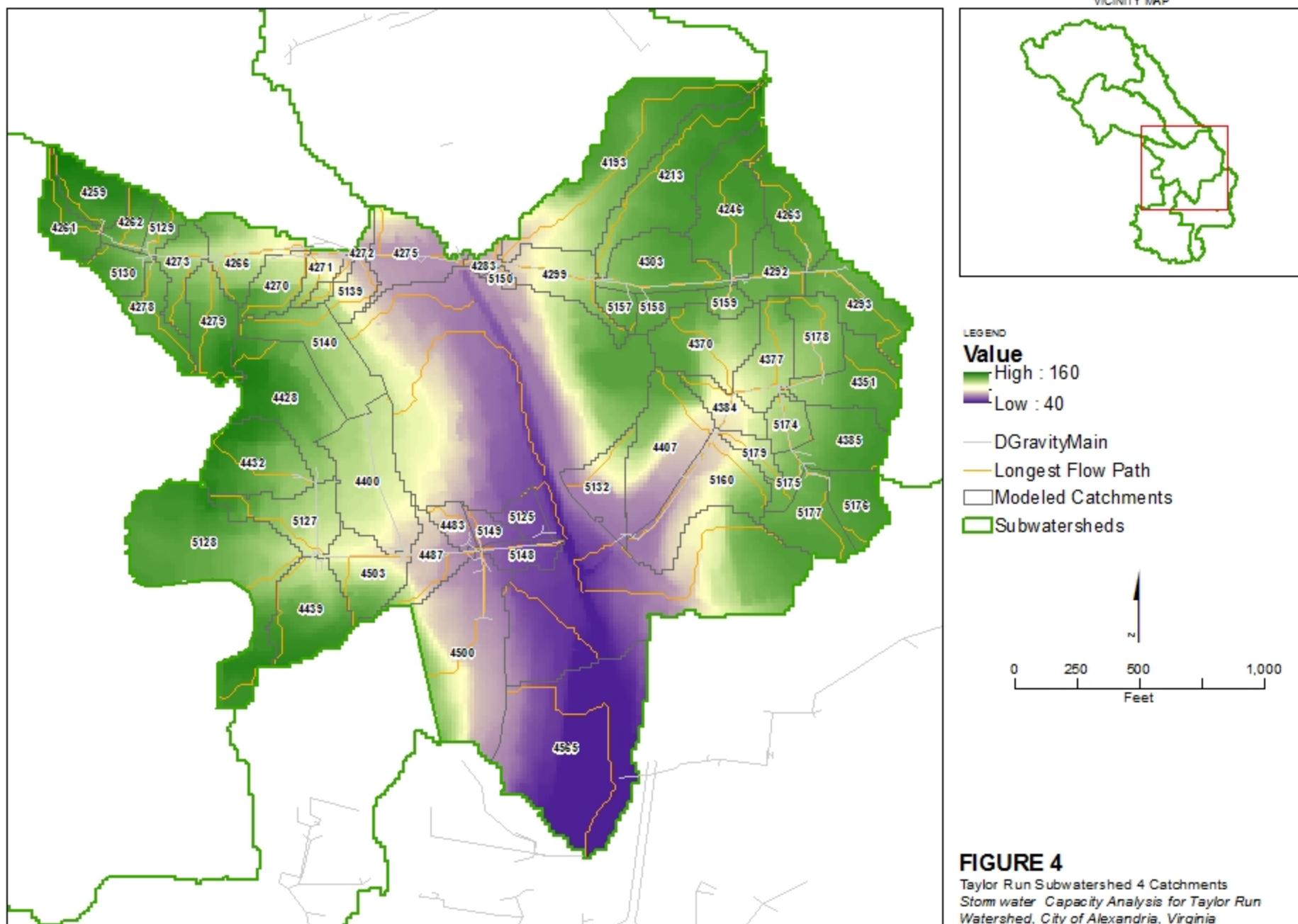
**FIGURE 2**  
Taylor Run Subwatershed 2 Catchments  
Storm water Capacity Analysis for Taylor Run  
Watershed, City of Alexandria, Virginia





**FIGURE 3**  
 Taylor Run Subwatershed 3 Catchments  
 Storm water Capacity Analysis for Taylor Run  
 Watershed, City of Alexandria, Virginia

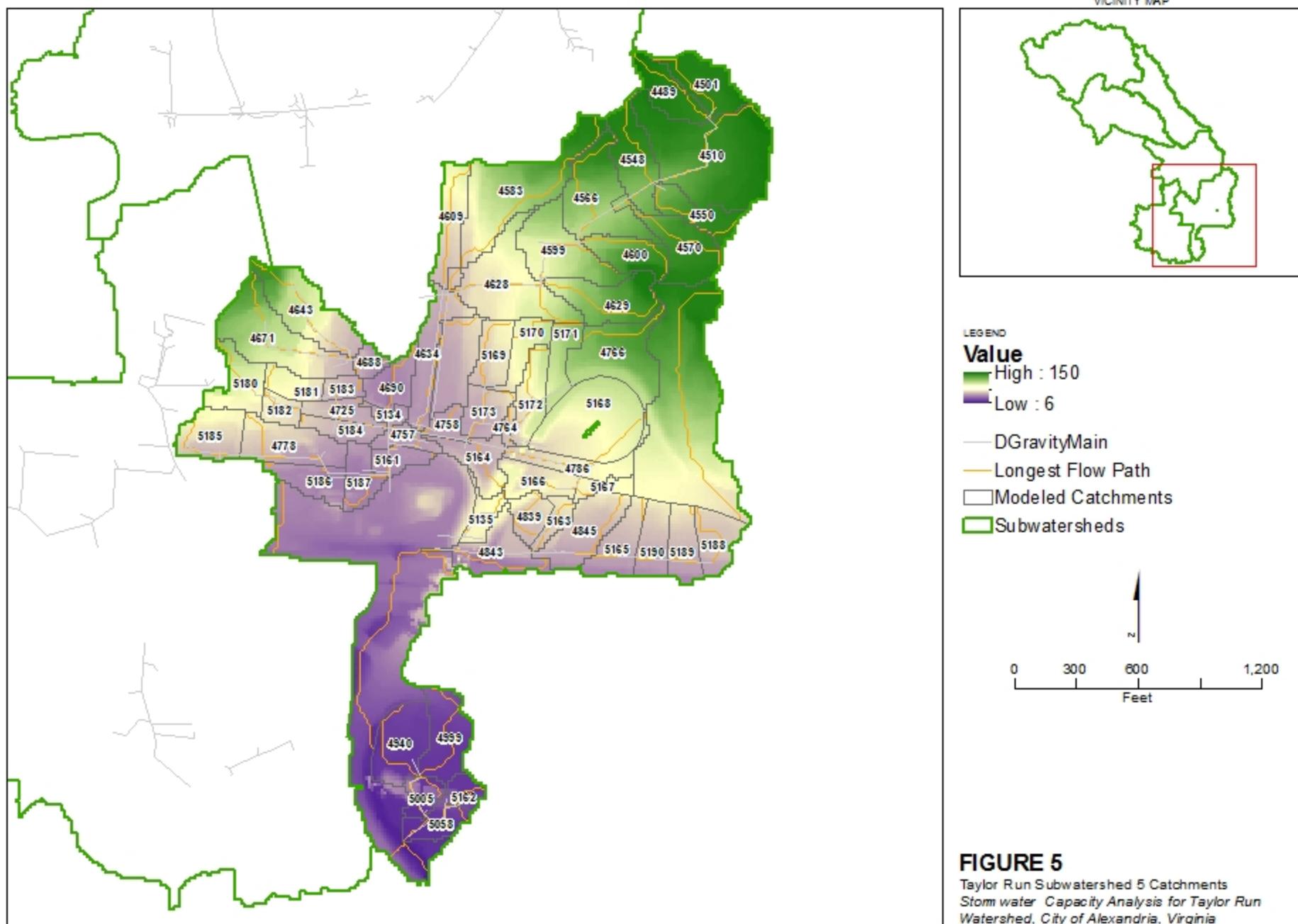




**FIGURE 4**

Taylor Run Subwatershed 4 Catchments  
Storm water Capacity Analysis for Taylor Run  
Watershed, City of Alexandria, Virginia







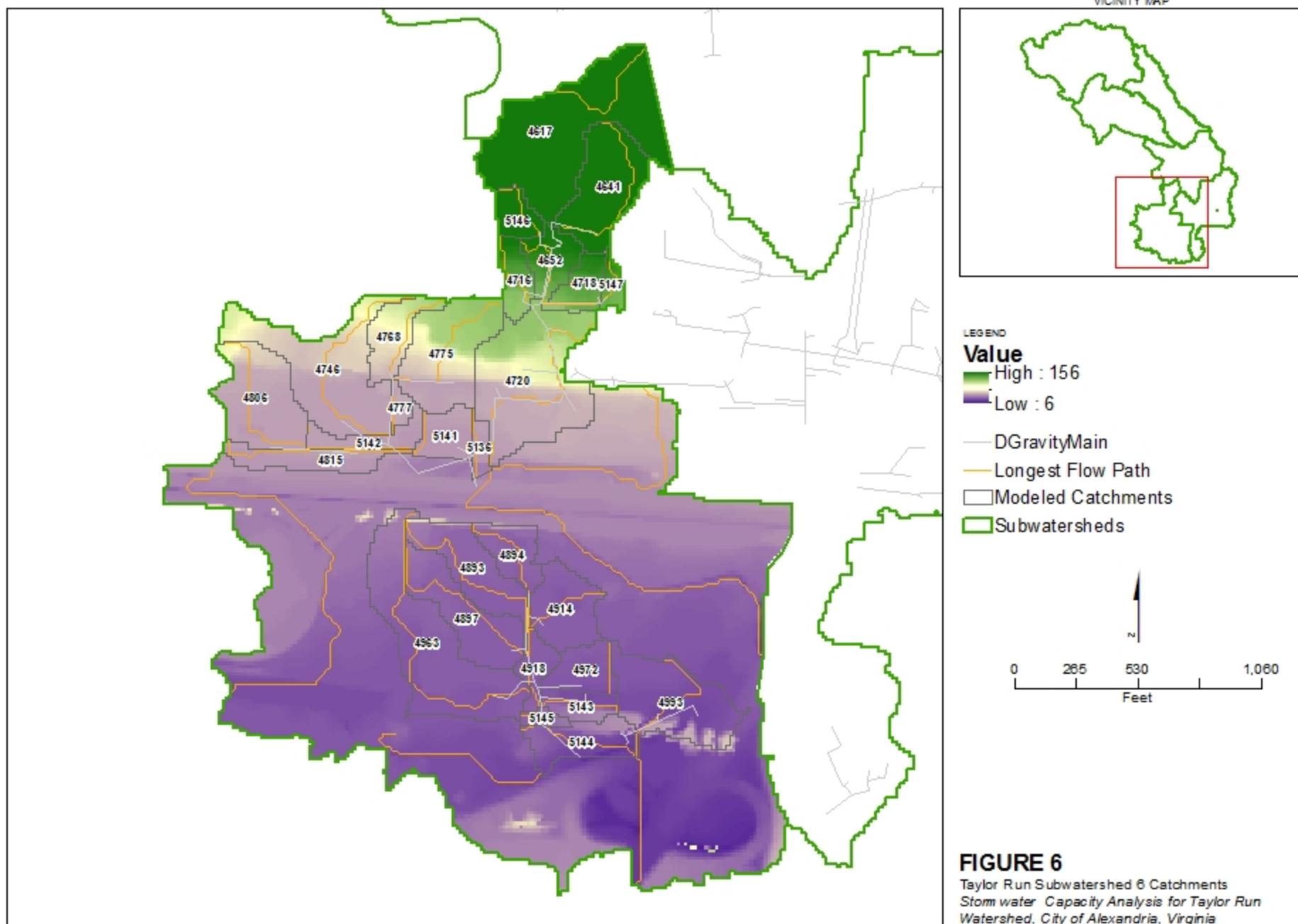




TABLE 1

**Infiltration Data**

Parameter	Value
Average Capillary Suction (in)	8.27
Initial Moisture Deficit	0.154
Saturated Hydraulic Conductivity (in/hr)	0.2

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

Subwatershed	HydroID	Area (ac)	Basin Slope (%)	Width	Percent Impervious	Model Load Point
1	3410	4.396	1.583	222.5	90.07	000471IN
1	3425	9.783	4.526	247.9	48.55	000008SMH
1	3435	1.968	1.590	162.7	96.61	000467IN
1	3436	6.317	2.512	262.6	56.04	000002CP
1	3452	1.261	3.239	114.7	68.25	005524IN
1	3460	1.787	2.301	144.6	0.77	Taylor Run
1	3461	3.233	7.425	182.7	65.13	003766IN
1	3470	2.113	2.204	197.1	40.78	000135IN
1	3479	2.071	4.121	142.7	54.04	003780IN
1	3480	1.741	3.799	117.5	37.05	000009SMH
1	3497	1.916	3.518	131.6	49.21	003779IN
1	3498	1.849	8.500	116.2	46.71	001205SMH
1	3502	1.874	4.638	149.4	39.07	003769IN
1	3507	65.238	3.572	831.4	19.39	003773IN
1	3508	1.038	2.073	94.7	83.13	000039SMH
1	3512	6.885	2.464	265.1	49.61	000004SMH
1	3518	7.572	2.396	219.8	24.78	000073IN
1	3519	1.018	2.936	88.9	83.79	000017IN
1	3520	0.572	3.020	60.7	63.45	005540IN
1	3522	0.873	2.894	101.3	96.25	000010SMH
1	3524	1.054	2.749	93.9	74.70	000137IN
1	3525	0.305	3.728	50.3	81.32	000136IN
1	3526	1.281	2.819	97.8	60.39	000032SMH
1	3536	0.590	6.805	86.9	68.30	000139IN
1	3561	0.336	2.977	64.9	67.91	000037ND
1	3568	19.360	4.962	367.4	22.24	000074IN
1	3575	1.880	3.840	140.7	35.05	000140IN
1	3576	1.390	5.747	149.0	18.28	009301IN
1	3612	8.208	4.579	179.9	18.03	000075IN
1	3615	1.074	6.512	129.9	70.90	000055IN
1	3618	0.470	3.435	66.1	67.03	000039IN
1	3619	1.952	5.118	150.6	63.15	000056IN
1	3625	1.312	7.382	126.3	35.47	004217SMH
1	3654	2.577	1.809	114.8	36.85	000068IN

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
1	3655	3.549	6.820	211.4	69.99	004201SMH
1	3656	4.442	4.935	270.7	50.98	004208SMH
1	3659	1.637	6.985	128.3	75.40	004204SMH
1	3692	1.921	3.258	161.4	35.66	000014IN
1	3693	1.338	4.168	113.7	37.05	000083IN
1	3703	4.680	3.007	211.7	31.30	000013SMH
1	3705	1.147	4.581	83.1	75.05	004210SMH
1	3719	39.788	4.947	626.4	24.82	000013IO
1	3722	1.105	2.358	101.8	34.48	000877IN
1	3723	0.496	4.110	82.6	96.11	004211SMH
1	3730	1.632	3.986	126.1	86.87	000099IN
1	3737	0.145	9.996	42.4	56.77	000091IN
1	3738	0.775	5.812	110.1	30.82	000014SMH
1	3739	1.446	1.949	92.4	75.90	004212SMH
1	3740	2.794	5.576	179.4	71.99	000094IN
1	3744	0.687	4.972	73.2	73.01	004212SMH
1	3746	1.431	0.508	142.6	1.08	000087IN
1	3756	1.338	2.302	121.5	10.67	004214SMH
1	3757	2.071	7.198	152.0	39.88	000093IN
1	3793	4.530	2.775	265.0	14.32	004216SMH
1	3796	1.684	3.245	140.9	30.56	000006IO
1	3823	4.091	2.083	313.9	21.09	000814IN
1	5096	0.646	6.638	75.4	38.81	001203SMH
1	5102	0.500	3.231	110.1	55.10	000144IN
1	5103	0.935	0.552	170.0	88.10	005526IN
1	5104	1.626	2.028	155.4	68.10	005525IN
1	5105	0.284	3.994	53.1	52.74	005538IN
1	5106	0.528	5.223	79.3	43.90	005522IN
1	5107	1.035	4.464	163.0	47.36	005527IN
1	5108	0.952	1.964	126.2	88.46	005529IN
1	5109	0.936	5.272	107.5	72.92	005539IN
1	5110	0.708	3.465	65.6	74.65	005536IN
1	5111	0.414	5.129	56.0	21.48	000693ND
1	5112	0.497	2.307	102.8	68.32	007483IN
1	5113	0.274	2.995	69.5	73.57	002578SMH
1	5114	0.478	6.436	112.8	30.25	000141IN
1	5115	0.673	4.739	89.8	66.99	000004IN
2	3786	6.632	3.418	249.2	19.55	000874IN
2	3828	1.462	1.871	127.5	14.78	000070SMH
2	3840	6.870	8.205	277.1	9.51	000871IN
2	3875	1.668	7.810	68.9	29.57	000872IN
2	3876	4.576	5.354	232.2	19.05	000818IN
2	3898	5.129	7.246	175.0	24.28	000123ND

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
2	3908	6.276	6.524	223.8	25.55	TAR.631
2	3923	3.027	3.395	197.7	11.47	000822IN
2	3931	7.898	7.030	298.1	20.70	000027CP
2	3945	1.854	5.772	110.9	27.41	000083SMH
2	3950	3.032	3.572	123.2	9.32	000823IN
2	3954	8.786	6.744	214.9	19.85	000071SMH
2	3974	1.348	9.243	130.1	31.66	000824IN
2	3991	0.697	6.379	65.3	21.38	000831IN
2	4000	3.730	9.184	225.1	25.07	000827IN
2	4008	7.596	8.168	278.5	6.93	000009IO
2	4021	5.537	10.861	268.2	18.52	000027CP
2	4026	2.231	7.298	98.2	27.61	000882IN
2	4038	9.933	9.426	385.9	15.28	000003IO
2	4043	1.702	6.558	186.7	22.06	000073IO
2	4065	2.076	6.861	90.3	38.79	000125ND
2	4085	1.488	5.900	97.9	42.58	000122ND
2	4086	1.333	5.693	58.3	23.18	000881IN
2	4093	0.098	2.395	38.9	47.58	000309SMH
2	4094	28.605	9.293	528.0	15.99	TAR.297
2	4097	4.923	5.407	180.0	37.49	009928IN
2	4101	1.142	3.856	107.6	49.22	000881IN
2	4102	0.310	3.152	75.5	44.10	000880IN
2	4139	3.114	3.866	251.9	36.11	001292IN
2	4177	9.830	14.897	316.6	24.40	TAR.201
2	5097	0.079	0.882	39.8	100.00	000887IN
2	5098	0.790	6.431	138.4	28.18	000010IO
2	5099	1.585	7.168	156.2	14.70	000073IO
2	5100	2.433	3.952	168.7	28.85	000890IN
2	5101	2.561	5.931	274.5	38.85	000828IN
2	5116	3.440	4.330	211.7	30.87	000860IN
2	5117	1.284	4.769	146.9	46.47	000863IN
2	5118	1.154	5.952	131.9	45.00	000864IN
2	5119	1.844	9.708	133.2	39.33	000305SMH
2	5138	1.286	3.682	121.2	27.12	000886IN
3	3582	1.379	2.723	185.7	56.75	005533IN
3	3600	2.500	1.741	187.5	60.62	005530IN
3	3601	1.353	2.054	125.4	46.79	002550SMH
3	3648	1.958	7.432	134.9	24.89	000047IN
3	3649	1.074	1.833	123.7	29.12	005534IN
3	3682	3.233	3.824	215.3	39.02	000024SMH
3	3716	1.498	8.971	166.6	29.32	000053IN
3	3741	1.908	10.801	128.1	28.08	000030ND
3	3747	0.599	9.062	81.8	53.40	000105IN

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

Subwatershed	HydroID	Area	Basin Slope	Percent		Model Load Point
		(ac)	(%)	Width	Impervious	
3	3752	2.004	18.255	138.6	15.03	Taylor Run
3	3774	1.192	13.861	140.5	26.23	000006IN
3	3787	0.975	24.054	104.5	1.67	Taylor Run
3	3801	1.139	14.278	192.0	39.63	000009IN
3	3802	4.437	7.242	209.5	17.87	000077IO
3	3808	1.715	11.054	130.4	52.33	000057IN
3	3814	0.894	28.250	108.6	1.81	Taylor Run
3	3841	4.861	17.889	268.6	24.31	Taylor Run
3	3851	14.091	3.513	316.1	13.72	000002IO
3	3909	4.199	7.165	226.9	16.90	000076IO
3	3912	13.028	14.345	408.5	35.24	Taylor Run
3	4002	0.362	19.948	64.7	30.59	000530IO
3	4009	1.648	6.921	123.8	53.23	005739IN
3	4022	7.312	17.438	247.8	19.11	Taylor Run
3	4044	2.037	5.215	292.6	46.38	005746IN
3	4099	1.823	5.762	191.9	40.13	002106ND
3	4113	0.702	8.971	95.2	39.20	002098ND
3	4120	1.214	3.626	100.9	41.89	005768IN
3	4128	0.762	14.111	75.1	27.47	000701IN
3	4132	3.228	11.707	216.5	35.46	000792IN
3	4145	6.291	15.686	297.5	29.45	Taylor Run
3	4170	6.286	8.360	251.8	43.31	000266SMH
3	4214	2.309	12.372	169.7	38.36	Taylor Run
3	4247	3.688	11.240	161.4	41.40	Taylor Run
3	5120	1.328	8.097	93.1	37.28	000120IN
3	5121	1.240	12.380	162.5	41.69	000028SMH
3	5122	1.421	6.718	115.5	36.81	005821IN
3	5123	2.533	1.562	408.6	39.50	005825IN
3	5124	5.097	4.646	670.0	48.39	000756ND
3	5131	0.217	23.561	97.1	15.38	000115ND
3	5151	1.308	4.331	133.7	46.01	005742IN
3	5152	1.660	5.671	137.3	36.71	005764IN
3	5153	0.591	1.391	115.9	21.25	000531IO
3	5154	1.458	2.036	100.6	59.62	005757IN
3	5155	1.309	1.554	354.1	45.41	005751IN
3	5156	2.340	2.129	167.7	26.43	000532IO
4	4193	5.279	7.989	156.0	31.72	000753IN
4	4213	3.677	4.287	127.1	48.83	000695IN
4	4246	2.949	2.951	170.2	35.64	000118ND
4	4259	1.307	4.840	128.0	46.81	000051CB
4	4261	1.126	4.675	99.1	49.00	001233IN
4	4262	0.736	9.312	91.1	34.27	001228IN
4	4263	1.720	3.404	109.6	52.96	000714IN

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
4	4266	1.751	12.112	125.8	44.18	000294SMH
4	4270	1.085	14.332	102.2	26.50	003499SMH
4	4271	0.527	15.177	53.1	32.59	000796IN
4	4272	0.429	13.642	51.3	39.74	000797IN
4	4273	1.157	10.310	114.3	39.24	000474SMH
4	4275	1.875	7.274	145.7	39.62	000757IN
4	4278	1.152	4.278	85.0	38.19	001140IN
4	4279	1.746	7.861	111.2	45.86	001134IN
4	4283	0.248	6.360	47.5	81.70	000036CB
4	4286	2.817	9.970	194.2	31.55	Taylor Run
4	4292	1.131	3.145	124.8	46.12	000719IN
4	4293	1.947	3.396	115.3	48.69	002903SMH
4	4299	1.606	9.468	103.0	39.86	000282SMH
4	4303	2.123	4.990	140.0	45.46	000721IN
4	4318	15.666	12.629	524.8	29.29	Taylor Run
4	4351	2.084	4.335	188.1	36.95	000741IN
4	4370	2.386	9.448	193.1	24.86	000767IN
4	4377	1.663	8.047	113.8	39.04	000725IN
4	4384	0.940	13.413	99.5	32.03	000568IN
4	4385	1.799	5.544	195.9	31.55	000737IN
4	4400	3.324	6.006	205.0	40.16	000203SMH
4	4407	3.153	14.485	360.9	26.33	000573IN
4	4428	3.332	8.783	578.1	34.77	000487IN
4	4432	2.469	8.189	195.5	40.28	000491IN
4	4439	2.423	10.027	194.2	40.08	000083ND
4	4483	0.521	12.197	107.3	33.46	000600IN
4	4487	1.353	11.796	90.8	39.64	000205SMH
4	4488	5.465	11.032	220.8	31.13	Taylor Run
4	4500	5.179	13.382	343.0	48.49	000518IN
4	4503	1.803	14.245	142.5	34.25	000200SMH
4	4522	3.708	11.215	286.5	35.10	Taylor Run
4	4565	7.911	10.880	286.7	24.17	000048IO
4	5125	0.614	3.664	119.4	40.34	000210SMH
4	5126	1.708	11.898	172.8	28.42	Taylor Run
4	5127	1.865	7.794	137.9	42.10	000506IN
4	5128	6.028	6.500	491.9	40.11	000499IN
4	5129	0.519	9.708	68.5	47.33	001226IN
4	5130	0.843	8.160	207.5	38.79	001144IN
4	5132	1.472	12.518	169.8	26.44	000607IN
4	5133	0.852	21.476	111.3	8.47	Taylor Run
4	5139	0.744	13.411	84.3	38.35	000800IN
4	5140	2.355	7.568	229.2	51.36	000801IN
4	5148	0.709	5.181	88.2	55.76	000526IN

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
4	5149	0.465	7.977	97.9	43.54	000605IN
4	5150	0.165	8.622	67.1	31.44	000750IN
4	5157	0.483	7.008	122.8	22.43	000114ND
4	5158	0.631	2.417	119.3	46.80	000748IN
4	5159	0.421	9.109	102.1	21.99	000113ND
4	5160	2.907	13.423	139.4	29.97	000575IN
4	5174	0.750	8.889	121.7	47.95	000273SMH
4	5175	0.529	6.210	107.8	46.37	000733IN
4	5176	1.291	2.820	196.2	35.17	000740IN
4	5177	1.672	2.997	159.5	30.11	000277SMH
4	5178	1.460	7.379	142.6	25.17	000743IN
4	5179	0.510	11.501	66.6	18.49	000571IN
5	4489	1.343	2.382	107.3	40.95	000240SMH
5	4501	1.575	2.770	132.7	30.40	000102ND
5	4510	5.728	5.595	302.7	34.98	000242SMH
5	4548	1.958	8.672	121.6	22.16	000243SMH
5	4550	1.333	5.985	80.6	22.49	000652IN
5	4566	2.931	11.664	174.5	18.10	000236SMH
5	4570	2.028	5.961	115.0	9.85	000244SMH
5	4583	4.215	11.776	144.9	28.78	000612IN
5	4599	2.562	11.763	186.5	36.19	000233SMH
5	4600	1.338	15.350	101.6	35.02	000640IN
5	4609	1.462	5.921	93.2	56.31	000613IN
5	4628	3.481	7.933	187.0	40.72	000227SMH
5	4629	2.200	11.164	131.6	49.22	000637IN
5	4634	1.834	4.767	95.3	50.97	000616IN
5	4643	2.567	14.522	146.7	46.33	000520IN
5	4653	8.734	8.218	270.7	48.18	Taylor Run
5	4671	3.347	11.799	170.9	62.20	000536IN
5	4688	0.470	10.620	92.8	27.31	000226SMH
5	4689	1.885	6.766	205.8	35.12	Taylor Run
5	4690	1.101	8.778	121.3	29.67	TAR.635
5	4725	0.777	5.732	121.8	77.44	000542IN
5	4757	0.635	4.219	101.4	71.09	000665IN
5	4758	0.560	3.260	93.5	54.22	000620IN
5	4764	0.232	7.213	43.9	43.30	000641IN
5	4766	2.801	13.511	245.1	43.78	000648IN
5	4778	2.103	9.702	161.8	85.29	000248SMH
5	4786	1.260	7.453	108.3	61.99	000682IN
5	4793	7.738	11.698	887.2	6.32	Taylor Run
5	4839	0.855	9.981	99.2	65.51	001561SMH
5	4843	1.921	22.411	120.3	33.78	004904IN
5	4845	2.059	10.068	140.3	77.89	004919IN

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
5	4940	2.047	9.002	169.9	46.00	004835IN
5	4999	1.978	3.059	129.4	85.84	004832IN
5	5005	0.708	25.242	74.2	83.98	001534SMH
5	5058	0.938	6.529	92.0	57.64	001533SMH
5	5095	0.883	17.597	111.2	46.05	Taylor Run
5	5134	0.345	5.332	128.9	76.26	000625IN
5	5135	0.697	7.013	93.4	76.97	004886IN
5	5137	7.906	17.769	239.6	39.48	Taylor Run
5	5161	0.713	5.147	141.9	87.49	000662IN
5	5162	0.611	7.411	111.5	94.11	004848IN
5	5163	0.539	6.367	68.5	90.09	004905IN
5	5164	1.309	12.226	158.7	40.94	002107ND
5	5165	1.456	7.915	171.0	64.75	004911IN
5	5166	1.202	13.995	229.3	31.25	000685IN
5	5167	0.508	3.669	131.2	62.24	000683IN
5	5168	3.837	8.765	522.6	19.15	000644IN
5	5169	1.183	7.315	121.5	44.25	000022CB
5	5170	1.023	10.235	185.6	41.82	000629IN
5	5171	1.017	12.916	299.4	32.54	000686IN
5	5172	1.355	16.523	99.2	42.74	000633IN
5	5173	1.140	7.474	121.5	62.40	000229SMH
5	5180	1.384	10.639	153.3	65.15	000548IN
5	5181	0.803	9.480	271.9	78.09	000541IN
5	5182	0.606	6.849	109.7	73.12	000217SMH
5	5183	0.466	8.925	108.9	63.32	000538IN
5	5184	0.763	6.372	225.6	82.52	000666IN
5	5185	1.584	10.142	159.4	83.75	000678IN
5	5186	1.161	9.331	237.2	24.93	000010ND
5	5187	1.051	7.131	141.2	41.89	000671IN
5	5188	1.281	7.320	124.1	72.65	004913IN
5	5189	1.225	8.588	240.9	68.48	004912IN
5	5190	1.193	8.742	233.8	73.60	000611ND
6	4617	6.963	6.763	499.7	33.63	000549IN
6	4641	3.017	8.516	157.6	42.72	000550IN
6	4652	1.234	11.054	129.8	79.59	000219SMH
6	4716	0.917	11.668	108.2	85.40	000566IN
6	4718	0.981	11.537	156.0	73.39	000562IN
6	4720	5.682	8.596	207.9	62.08	000820SMH
6	4746	4.845	4.036	194.3	61.86	000818SMH
6	4768	1.410	8.102	123.9	73.72	002429IN
6	4775	3.466	9.357	208.5	62.83	002431IN
6	4777	0.331	2.941	58.2	77.51	002211ND
6	4806	3.108	3.464	181.7	72.95	008952IN

TABLE 2

**Hydrologic Parameters for Taylor Run Catchments**

<b>Subwatershed</b>	<b>HydroID</b>	<b>Area (ac)</b>	<b>Basin Slope (%)</b>	<b>Width</b>	<b>Percent Impervious</b>	<b>Model Load Point</b>
6	4815	1.441	3.132	72.5	3.66	008950IN
6	4841	18.781	5.072	417.4	33.42	Taylor Run
6	4842	23.289	4.536	317.9	29.42	Taylor Run
6	4893	2.397	5.027	101.5	62.22	001546SMH
6	4894	1.302	7.132	92.6	66.57	001547SMH
6	4897	2.712	1.247	144.6	59.82	000616ND
6	4914	2.014	1.375	230.0	70.90	004866IN
6	4918	0.780	1.487	85.9	79.80	004868IN
6	4963	5.527	2.504	165.3	47.51	000603ND
6	4972	1.229	1.999	227.3	73.31	000622ND
6	4993	3.554	12.691	232.6	72.32	004876IN
6	5011	19.489	9.666	582.5	40.30	Taylor Run
6	5136	0.430	4.754	62.5	71.30	004064SMH
6	5141	1.054	1.752	200.0	100.00	002212ND
6	5142	0.952	1.472	85.3	53.62	000813SMH
6	5143	0.826	11.340	98.6	55.18	004873IN
6	5144	1.665	11.342	147.1	69.41	002103ND
6	5145	0.298	4.423	85.3	89.83	004880IN
6	5146	0.793	12.870	104.9	57.33	000551IN
6	5147	0.414	11.618	64.9	63.93	000561IN

Note: HydroID is a unique identifier created by ArcHydro

**Attachment C**  
**Inlet Capacity Results**

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TABLE 1  
Detailed Inlet Capacity Results for Taylor Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
1	000002CP	6.317	5	16.3	35.3	Insufficient
1	000004IN	0.673	3	9.8	3.9	
1	000004SMH	6.885	12	39.0	37.7	
1	000006IO	1.684	0	0.0	9.3	Insufficient
1	000008SMH	9.593	2	6.5	51.8	Insufficient
1	000009SMH	1.741	2	6.5	9.6	Insufficient
1	000010SMH	0.873	2	6.5	5.2	
1	000013IO	39.788	1	3.3	176.9	Insufficient
1	000013SMH	4.680	2	6.5	24.8	Insufficient
1	000014IN	1.921	3	9.8	10.7	Insufficient
1	000014SMH	0.775	2	6.5	4.3	
1	000017IN	1.018	2	6.5	5.9	
1	000032SMH	1.281	4	13.0	7.3	
1	000037ND	0.336	2	6.5	1.9	
1	000039IN	0.470	2	6.5	2.7	
1	000039SMH	1.038	10	32.5	6.1	
1	000055IN	1.074	2	6.5	6.2	
1	000056IN	1.952	3	9.8	11.2	Insufficient
1	000068IN	2.577	2	6.5	13.5	Insufficient
1	000070SMH	1.462	0	0.0	7.7	Insufficient
1	000073IN	7.572	5	16.3	35.7	Insufficient
1	000074IN	19.360	0	0.0	88.6	Insufficient
1	000075IN	8.208	4	13.0	37.4	Insufficient
1	000083IN	1.338	4	13.0	7.4	
1	000087IN	1.431	2	6.5	6.5	Insufficient
1	000091IN	0.145	0	0.0	0.8	Insufficient
1	000093IN	2.071	2	6.5	11.6	Insufficient
1	000094IN	2.794	3	9.8	16.1	Insufficient
1	000099IN	1.632	3	9.8	9.6	
1	000135IN	2.103	1	3.3	11.8	Insufficient
1	000136IN	0.305	0	0.0	1.8	Insufficient
1	000137IN	1.054	1	3.3	6.1	Insufficient
1	000139IN	0.590	2	6.5	3.4	
1	000140IN	1.880	1	3.3	10.4	Insufficient
1	000141IN	0.478	1	3.3	2.7	
1	000144IN	0.500	1	3.3	2.8	
1	000467IN	1.968	1	3.3	11.6	Insufficient
1	000471IN	3.665	3	9.8	21.5	Insufficient
1	000693ND	0.414	0	0.0	2.3	Insufficient
1	000814IN	4.091	1	3.3	21.7	Insufficient
1	000877IN	1.105	1	3.3	6.1	Insufficient
1	001203SMH	0.647	1	3.3	3.6	Insufficient
1	001205SMH	1.849	4	13.0	10.4	
1	002110ND	65.293	2	6.5	244.3	Insufficient
1	002578SMH	0.274	0	0.0	1.6	Insufficient
1	003766IN	3.249	3	9.8	18.6	Insufficient
1	003769IN	1.874	8	26.0	10.5	
1	003779IN	1.925	1	3.3	10.8	Insufficient
1	003780IN	1.950	3	9.8	11.1	Insufficient
1	004201SMH	3.549	0	0.0	20.5	Insufficient
1	004204SMH	1.637	0	0.0	9.5	Insufficient
1	004208SMH	4.442	1	3.3	25.1	Insufficient
1	004210SMH	1.147	0	0.0	6.6	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Taylor Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
1	004211SMH	0.496	0	0.0	2.9	Insufficient
1	004212SMH	2.133	0	0.0	12.3	Insufficient
1	004214SMH	1.338	2	6.5	7.1	Insufficient
1	004216SMH	4.530	3	9.8	23.3	Insufficient
1	004217SMH	1.312	1	3.3	7.3	Insufficient
1	005522IN	0.528	1	3.3	3.0	
1	005524IN	1.534	2	6.5	8.9	Insufficient
1	005525IN	1.651	1	3.3	9.5	Insufficient
1	005526IN	0.256	1	3.3	1.5	
1	005527IN	1.208	1	3.3	6.8	Insufficient
1	005529IN	1.055	2	6.5	6.2	
1	005536IN	0.708	2	6.5	4.1	
1	005538IN	0.284	1	3.3	1.6	
1	005539IN	0.936	1	3.3	5.4	Insufficient
1	005540IN	0.572	3	9.8	3.3	
1	007483IN	0.497	1	3.3	2.9	
1	009301IN	1.390	3	9.8	7.6	
2	000003IO	9.933	1	3.3	52.3	Insufficient
2	000009IO	7.596	1	3.3	38.5	Insufficient
2	000010IO	0.790	0	0.0	4.4	Insufficient
2	000027CP	13.435	3	9.8	71.4	Insufficient
2	000071SMH	8.786	1	3.3	43.2	Insufficient
2	000073IO	3.287	1	3.3	18.1	Insufficient
2	000083SMH	1.854	3	9.8	10.1	Insufficient
2	000122ND	1.488	1	3.3	8.3	Insufficient
2	000123ND	5.129	2	6.5	27.0	Insufficient
2	000125ND	2.076	2	6.5	11.5	Insufficient
2	000305SMH	1.844	2	6.5	10.3	Insufficient
2	000309SMH	0.098	1	3.3	0.6	
2	000818IN	4.576	2	6.5	24.3	Insufficient
2	000822IN	3.027	1	3.3	15.8	Insufficient
2	000823IN	3.032	1	3.3	14.7	Insufficient
2	000824IN	1.348	0	0.0	7.5	Insufficient
2	000827IN	3.730	3	9.8	20.5	Insufficient
2	000828IN	2.561	3	9.8	14.3	Insufficient
2	000831IN	0.697	5	16.3	3.8	
2	000860IN	3.440	3	9.8	18.8	Insufficient
2	000863IN	1.284	1	3.3	7.2	Insufficient
2	000864IN	1.154	2	6.5	6.5	
2	000871IN	6.870	1	3.3	35.5	Insufficient
2	000872IN	1.668	1	3.3	9.1	Insufficient
2	000874IN	6.632	2	6.5	33.1	Insufficient
2	000880IN	0.310	1	3.3	1.7	
2	000881IN	2.474	1	3.3	13.5	Insufficient
2	000882IN	2.231	1	3.3	12.1	Insufficient
2	000886IN	1.286	2	6.5	7.1	Insufficient
2	000887IN	0.079	2	6.5	0.5	
2	000890IN	2.433	3	9.8	13.3	Insufficient
2	001292IN	3.114	3	9.8	17.3	Insufficient
2	009928IN	4.923	8	26.0	26.7	Insufficient
3	000006IN	1.192	2	6.5	6.6	Insufficient
3	000009IN	1.139	4	13.0	6.4	
3	000024SMH	3.309	2	6.5	18.4	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Taylor Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
3	000028SMH	1.240	8	26.0	7.0	
3	000030ND	1.908	4	13.0	10.6	
3	000047IN	1.958	5	16.3	10.8	
3	000053IN	1.498	3	9.8	8.3	
3	000057IN	1.745	9	29.3	9.9	
3	000105IN	0.599	3	9.8	3.4	
3	000115ND	0.217	0	0.0	1.2	Insufficient
3	000120IN	1.328	4	13.0	7.4	
3	000266SMH	6.286	5	16.3	35.0	Insufficient
3	000530IO	0.362	0	0.0	2.0	Insufficient
3	000531IO	0.529	0	0.0	2.9	Insufficient
3	000532IO	1.207	1	3.3	6.7	Insufficient
3	000701IN	0.762	2	6.5	4.2	
3	000756ND	4.430	8	26.0	24.5	
3	000792IN	3.228	11	35.8	18.0	
3	002098ND	0.702	1	3.3	3.9	Insufficient
3	002106ND	1.823	1	3.3	10.2	Insufficient
3	002550SMH	1.503	0	0.0	8.5	Insufficient
3	005530IN	2.770	3	9.8	15.8	Insufficient
3	005533IN	1.480	1	3.3	8.5	Insufficient
3	005534IN	1.112	1	3.3	6.1	Insufficient
3	005739IN	1.648	2	6.5	9.3	Insufficient
3	005742IN	1.350	4	13.0	7.6	
3	005746IN	2.036	4	13.0	11.5	
3	005751IN	1.309	3	9.8	7.4	
3	005757IN	1.141	3	9.8	6.6	
3	005764IN	1.660	4	13.0	9.3	
3	005768IN	1.214	1	3.3	6.8	Insufficient
3	005821IN	0.981	9	29.3	5.5	
3	005825IN	2.507	1	3.3	13.6	Insufficient
4	000036CB	0.248	2	6.5	1.4	
4	000048IO	7.911	0	0.0	1616.6	Insufficient
4	000051CB	1.307	2	6.5	7.4	Insufficient
4	000083ND	2.423	6	19.5	13.6	
4	000113ND	0.421	0	0.0	2.4	Insufficient
4	000114ND	0.483	0	0.0	2.7	Insufficient
4	000118ND	2.775	3	9.8	15.2	Insufficient
4	000200SMH	1.803	5	16.3	10.1	
4	000203SMH	3.324	14	45.5	18.5	
4	000205SMH	1.353	2	6.5	7.6	Insufficient
4	000210SMH	0.614	6	19.5	3.4	
4	000273SMH	0.750	0	0.0	4.2	Insufficient
4	000277SMH	1.672	4	13.0	9.2	
4	000282SMH	1.606	1	3.3	9.0	Insufficient
4	000294SMH	1.751	3	9.8	9.8	Insufficient
4	000474SMH	1.157	1	3.3	6.5	Insufficient
4	000487IN	3.332	3	9.8	18.7	Insufficient
4	000491IN	2.469	6	19.5	13.8	
4	000499IN	6.028	0	0.0	33.7	Insufficient
4	000506IN	1.865	9	29.3	10.5	
4	000518IN	5.179	8	26.0	29.2	Insufficient
4	000526IN	0.709	1	3.3	4.0	Insufficient
4	000568IN	0.940	2	6.5	5.2	

TABLE 1  
Detailed Inlet Capacity Results for Taylor Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
4	000571IN	0.510	1	3.3	2.8	
4	000573IN	3.153	5	16.3	17.5	Insufficient
4	000575IN	2.907	8	26.0	16.0	
4	000600IN	0.521	8	26.0	2.9	
4	000605IN	0.465	3	9.8	2.6	
4	000607IN	1.472	1	3.3	8.2	Insufficient
4	000695IN	3.651	11	35.8	20.3	
4	000714IN	1.277	3	9.8	7.3	
4	000719IN	1.131	2	6.5	6.4	
4	000721IN	2.123	3	9.8	11.9	Insufficient
4	000725IN	1.663	5	16.3	9.3	
4	000733IN	0.529	3	9.8	3.0	
4	000737IN	1.795	2	6.5	10.0	Insufficient
4	000740IN	1.289	1	3.3	7.2	Insufficient
4	000741IN	2.058	3	9.8	11.5	Insufficient
4	000743IN	1.460	2	6.5	8.1	Insufficient
4	000748IN	0.631	5	16.3	3.6	
4	000750IN	0.165	1	3.3	0.9	
4	000753IN	5.279	1	3.3	28.2	Insufficient
4	000757IN	1.875	6	19.5	10.5	
4	000767IN	2.386	1	3.3	13.2	Insufficient
4	000796IN	0.527	2	6.5	2.9	
4	000797IN	0.429	2	6.5	2.4	
4	000800IN	0.744	2	6.5	4.2	
4	000801IN	2.355	1	3.3	13.3	Insufficient
4	001134IN	1.746	5	16.3	9.8	
4	001140IN	1.152	3	9.8	6.4	
4	001144IN	0.843	4	13.0	4.8	
4	001226IN	0.519	2	6.5	2.9	
4	001228IN	0.736	5	16.3	4.1	
4	001233IN	1.126	1	3.3	6.4	Insufficient
4	002903SMH	1.269	5	16.3	7.2	
4	003499SMH	1.085	0	0.0	6.0	Insufficient
5	000010ND	1.161	1	3.3	6.5	Insufficient
5	000022CB	1.183	1	3.3	6.7	Insufficient
5	000102ND	1.572	0	0.0	8.6	Insufficient
5	000217SMH	0.606	3	9.8	3.5	
5	000226SMH	0.470	0	0.0	2.6	Insufficient
5	000227SMH	3.481	6	19.5	19.4	
5	000229SMH	1.140	4	13.0	6.5	
5	000233SMH	2.562	5	16.3	14.3	
5	000236SMH	2.931	0	0.0	16.0	Insufficient
5	000240SMH	1.334	0	0.0	7.5	Insufficient
5	000242SMH	5.709	3	9.8	31.5	Insufficient
5	000243SMH	1.958	1	3.3	10.7	Insufficient
5	000244SMH	2.035	0	0.0	10.7	Insufficient
5	000248SMH	2.103	4	13.0	12.3	
5	000520IN	2.567	5	16.3	14.5	
5	000536IN	3.347	3	9.8	19.2	Insufficient
5	000538IN	0.466	3	9.8	2.7	
5	000541IN	0.803	1	3.3	4.7	Insufficient
5	000542IN	0.777	2	6.5	4.5	
5	000548IN	1.384	2	6.5	7.9	Insufficient

TABLE 1  
Detailed Inlet Capacity Results for Taylor Run

Sub-shed	Model Load Point	Total Drainage Area (ac)	Total Throat Count	Total Inlet Capacity (cfs)	Peak Runoff (cfs)	Inlet Capacity
5	000611ND	1.333	0	0.0	7.7	Insufficient
5	000612IN	4.215	2	6.5	22.9	Insufficient
5	000613IN	1.462	2	6.5	8.3	Insufficient
5	000616IN	1.834	6	19.5	10.3	
5	000620IN	0.560	3	9.8	3.2	
5	000625IN	0.345	1	3.3	2.0	
5	000629IN	1.023	2	6.5	5.8	
5	000633IN	1.355	2	6.5	7.6	Insufficient
5	000637IN	2.193	2	6.5	12.4	Insufficient
5	000640IN	1.337	2	6.5	7.5	Insufficient
5	000641IN	0.232	3	9.8	1.3	
5	000644IN	3.862	1	3.3	21.2	Insufficient
5	000648IN	2.820	1	3.3	15.7	Insufficient
5	000652IN	1.301	1	3.3	7.1	Insufficient
5	000662IN	0.713	1	3.3	4.2	Insufficient
5	000665IN	0.635	5	16.3	3.7	
5	000666IN	0.763	1	3.3	4.5	Insufficient
5	000671IN	1.051	1	3.3	5.9	Insufficient
5	000678IN	1.584	8	26.0	9.2	
5	000682IN	1.474	2	6.5	8.4	Insufficient
5	000683IN	0.572	1	3.3	3.3	Insufficient
5	000685IN	1.202	2	6.5	6.8	Insufficient
5	000686IN	1.017	1	3.3	5.8	Insufficient
5	001533SMH	0.749	0	0.0	4.2	Insufficient
5	001534SMH	0.708	7	22.8	4.1	
5	001561SMH	0.855	1	3.3	4.9	Insufficient
5	002107ND	1.309	0	0.0	7.3	Insufficient
5	004832IN	0.426	1	3.3	2.5	
5	004835IN	1.954	1	3.3	11.0	Insufficient
5	004848IN	0.250	2	6.5	1.5	
5	004886IN	0.697	4	13.0	4.0	
5	004904IN	1.921	2	6.5	10.7	Insufficient
5	004905IN	0.539	2	6.5	3.2	
5	004911IN	1.574	1	3.3	9.0	Insufficient
5	004912IN	1.355	1	3.3	7.8	Insufficient
5	004913IN	2.189	2	6.5	12.7	Insufficient
5	004919IN	2.059	3	9.8	11.9	Insufficient
6	000219SMH	1.234	9	29.3	7.2	
6	000549IN	6.963	1	3.3	38.6	Insufficient
6	000550IN	3.017	1	3.3	16.9	Insufficient
6	000551IN	0.793	1	3.3	4.5	Insufficient
6	000561IN	0.414	1	3.3	2.4	
6	000562IN	0.981	2	6.5	5.7	
6	000566IN	0.917	3	9.8	5.4	
6	000603ND	4.754	2	6.5	26.0	Insufficient
6	000616ND	2.712	0	0.0	15.2	Insufficient
6	000622ND	1.229	0	0.0	7.1	Insufficient
6	000813SMH	0.558	1	3.3	3.2	
6	000818SMH	1.585	0	0.0	8.8	Insufficient
6	000820SMH	5.682	2	6.5	32.5	Insufficient
6	001546SMH	2.397	0	0.0	13.7	Insufficient
6	001547SMH	1.302	2	6.5	7.5	Insufficient
6	002103ND	1.665	2	6.5	9.6	Insufficient

TABLE 1  
**Detailed Inlet Capacity Results for Taylor Run**

<b>Sub-shed</b>	<b>Model Load Point</b>	<b>Total Drainage Area (ac)</b>	<b>Total Throat Count</b>	<b>Total Inlet Capacity (cfs)</b>	<b>Peak Runoff (cfs)</b>	<b>Inlet Capacity</b>
6	002211ND	0.331	0	0.0	1.9	Insufficient
6	002212ND	1.054	0	0.0	6.2	Insufficient
6	002429IN	0.950	1	3.3	5.4	Insufficient
6	002431IN	3.466	2	6.5	19.8	Insufficient
6	004064SMH	0.430	0	0.0	2.5	Insufficient
6	004866IN	2.014	2	6.5	11.6	Insufficient
6	004868IN	0.780	1	3.3	4.5	Insufficient
6	004873IN	0.826	3	9.8	4.7	
6	004876IN	3.554	4	13.0	20.5	Insufficient
6	004880IN	0.298	1	3.3	1.8	

**Attachment D**  
**Detailed Model Results**

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TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
1	000002STMP	000068IN	000033SMH	48	1.25	11.0	8.9	0.3	0.3	Flooded	2.8	Flooded	0.7	0.2	0.0	738	0	Flooded
1	000003STMP	000033SMH	000069IN	161	1.25	10.8	8.6	0.3	0.8	6.2	3.8	0.7	0.1	0.0	0.0	0	0	Insufficient Freeboard
1	000004STMP	000036SMH	000069IN	111	3	102.4	14.4	0.8	0.8	4.1	3.7	-	0.1	0.0	0.0	0	0	Surcharged
1	000005STMP	000069IN	000070IN	34	3	103.7	14.6	0.8	0.8	3.7	3.3	0.1	0.7	0.0	0.0	0	0	Insufficient Freeboard
1	000009STMP	000074IN	000073IN	249	1.5	19.0	10.5	4.2	1.9	Flooded	Flooded	Flooded	Flooded	4.1	1.8	124178	29230	Flooded
1	000010STMP	000075IN	000074IN	215	1.5	10.8	6.0	4	4.2	Flooded	Flooded	Flooded	Flooded	3.0	4.1	17245	124178	Flooded
1	000014STMP	000012IN	000013IN	55	2.5	98.1	10.1	0.8	0.8	4.8	4.8	1.5	-	0.0	0.0	0	0	Insufficient Freeboard
1	000016STMP	000013IO	000012IN	24	3	98.3	14.6	0.8	0.8	Flooded	4.0	Flooded	1.5	0.8	0.0	72576	0	Flooded
1	000017STMP	000013IN	000035SMH	61	3	97.4	13.7	0.8	0.8	5.3	5.0	-	-	0.0	0.0	0	0	Surcharged
1	000018STMP	000035SMH	000014IN	125	3	96.9	13.6	0.8	0.9	5.1	4.7	-	-	0.0	0.0	0	0	Surcharged
1	000019STMP	000014IN	000015IN	57	3	97.6	13.7	0.9	0.8	4.7	Flooded	-	Flooded	0.0	0.6	0	7442	Surcharged
1	000020STMP	000015IN	000036SMH	114	3	102.3	14.4	0.8	0.8	Flooded	3.8	Flooded	-	0.6	0.0	7442	0	Flooded
1	000021STMP	000016IN	000037SMH	11	1.5	5.9	5.5	1.5	1.5	2.0	2.7	1.0	0.8	0.0	0.0	0	0	Insufficient Freeboard
1	000022STMP	000048SMH	000037SMH	126	3.5	154.5	16.0	1.6	1.5	3.8	2.5	0.1	0.8	0.0	0.0	0	0	Insufficient Freeboard
1	000023STMP	000017IN	000016IN	8	1.25	5.9	9.7	0	1.5	-	2.3	1.0	1.0	0.0	0.0	0	0	Sufficient Capacity
1	000027STMP	000001CP	000002CP	149	2	26.0	8.3	0	0	1.3	1.9	-	-	0.0	0.0	0	0	Surcharged
1	000036STMP	000037SMH	000005SMH	114	3.5	155.0	16.1	1.5	0.7	2.7	1.6	0.8	-	0.0	0.0	0	0	Insufficient Freeboard
1	000037A	000019ND	000038SMH	83	2	7.3	4.7	0.9	0.1	1.9	2.3	-	-	0.0	0.0	0	0	Surcharged
1	000037B	000039SMH	000019ND	13	2	7.3	5.1	0.2	0.9	1.7	1.9	-	-	0.0	0.0	0	0	Surcharged
1	000038STMP	000003SMH	000048SMH	72	3.5	154.5	15.9	1.6	1.6	Flooded	3.8	Flooded	0.1	1.5	0.0	10188	0	Flooded
1	000039STMP	000041SMH	000003SMH	73	3.5	134.6	13.9	1.5	1.6	Flooded	Flooded	Flooded	Flooded	1.4	1.5	9349	10188	Flooded
1	000040STMP	000042SMH	000041SMH	128	3.5	140.5	14.5	1.5	1.5	Flooded	Flooded	Flooded	Flooded	0.7	1.4	3407	9349	Flooded
1	000041STMP	000004SMH	000042SMH	128	3.5	143.3	15.1	1.5	1.5	Flooded	Flooded	Flooded	Flooded	0.5	0.7	2773	3407	Flooded
1	000042STMP	000043SMH	000004SMH	295	3.5	122.5	15.2	1.4	1.5	2.3	Flooded	1.2	Flooded	0.0	0.5	0	2773	Insufficient Freeboard
1	000044STMP	000044SMH	000043SMH	150	3	122.7	17.2	1.4	1.4	Flooded	2.8	Flooded	1.2	0.9	0.0	3859	0	Flooded
1	000047STMP	000045SMH	000044SMH	147	3	117.8	16.5	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.4	0.9	16503	3859	Flooded
1	000048STMP	000008SMH	000044SMH	309	2	22.0	6.9	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.0	0.9	24186	3859	Flooded
1	000049STMP	000046SMH	000045SMH	378	3	108.0	15.0	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.4	1.4	138176	16503	Flooded
1	000050STMP	000047SMH	000045SMH	50	1.5	29.2	16.4	1.5	1.4	Flooded	Flooded	Flooded	Flooded	1.5	1.4	15906	16503	Flooded
1	000052STMP	000029IN	000047SMH	62	1	4.0	6.0	1.5	1.5	Flooded	Flooded	Flooded	Flooded	0.6	1.5	234	15906	Flooded
1	000053STMP	000032IN	000031IN	8	1	4.7	5.9	1.5	1.5	Flooded	Flooded	Flooded	Flooded	1.2	1.0	4578	1158	Flooded
1	000054STMP	000031IN	000030IN	8	1	4.0	5.0	1.5	1.5	Flooded	Flooded	Flooded	Flooded	1.0	0.9	1158	661	Flooded
1	000055STMP	000030IN	000029IN	7	1	3.9	5.0	1.5	1.5	Flooded	Flooded	Flooded	Flooded	0.9	0.6	661	234	Flooded
1	000062STMP	000049SMH	000025SMH	11	1.25	8.6	7.3	0.1	1.3	0.6	1.5	-	-	0.0	0.0	0	0	Surcharged
1	000063STMP	000136IN	000049SMH	22	1.25	5.5	6.0	0.1	0.1	0.3	0.5	-	-	0.0	0.0	0	0	Surcharged
1	000064STMP	000139IN	000049SMH	27	1.25	3.3	6.1	0	0.1	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000065A	000050SMH	000037ND	135	5	229.4	11.7	0	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
1	000065B	000037ND	000051SMH	22	5	241.4	13.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000066STMP	000142IN	000050SMH	11	1.25	2.8	6.9	0	0	-	0.5	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000068STMP	000141IN	000051SMH	43	1.25	2.7	6.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000069STMP	000006SMH	004213SMH	25	2	3.9	1.2	1.6	0	0.8	1.6	-	-	0.0	0.0	0	0	Surcharged
1	000070STMP	000052SMH	000006SMH	154	1.75	3.8	3.9	0	1.6	-	0.9	-	-					

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
1	000081STMP	000042IN	000007SMH	71	1.5	15.4	8.6	1.6	1.8	Flooded	Flooded	Flooded	Flooded	1.3	1.4	2325	5329	Flooded
1	000092A	000023ND	000002SMH	65	2	19.7	8.4	0.2	0.1	1.3	1.9	-	-	0.0	0.0	0	0	Surcharged
1	000092B	000022ND	000023ND	25	2	9.4	5.2	0.2	0.2	0.9	1.3	-	-	0.0	0.0	0	0	Surcharged
1	000092C	000009SMH	000022ND	20	2	9.4	5.7	0	0.2	0.6	0.9	-	-	0.0	0.0	0	0	Surcharged
1	000094STMP	000010SMH	000005SMH	66	1.25	5.1	4.1	0.2	0.7	2.3	3.3	-	-	0.0	0.0	0	0	Surcharged
1	000097STMP	000135IN	000023ND	275	1.25	10.6	8.5	0.2	0.2	Flooded	2.0	Flooded	-	0.1	0.0	173	0	Flooded
1	000098STMP	000137IN	000011SMH	12	1	6.1	7.6	0.3	0.3	1.9	1.1	0.7	-	0.0	0.0	0	0	Insufficient Freeboard
1	000100STMP	000011SMH	000024ND	14	1	6.0	7.6	0.3	0.2	1.2	0.4	-	-	0.0	0.0	0	0	Surcharged
1	000102STMP	000143IN	000142IN	16	1.25	-2.8	-4.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000103STMP	000144IN	000143IN	36	1.25	-2.8	-2.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000105STMP	000070IN	000083IN	128	3	103.7	14.6	0.8	0.7	3.3	2.4	0.7	1.1	0.0	0.0	0	0	Insufficient Freeboard
1	000112STMP	000083IN	000084IN	68	3	104.7	16.2	0.7	0.6	2.6	1.8	1.1	-	0.0	0.0	0	0	Insufficient Freeboard
1	000120STMP	000091IN	000014SMH	97	6	529.5	27.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000123STMP	000016SMH	000092IN	102	1.25	11.6	15.7	0	0.1	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000125STMP	000093IN	000016SMH	42	1	11.6	18.2	0	0	-	-	1.7	-	0.0	0.0	0	0	Sufficient Capacity
1	000126STMP	000094IN	000095IN	50	1	12.1	14.9	0.4	0.3	Flooded	2.0	Flooded	1.6	0.3	0.0	1323	0	Flooded
1	000127STMP	000095IN	000096IN	126	1.25	12.1	9.8	0.3	0	1.8	-	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
1	000128A	000096IN	000026ND	67	1.25	12.1	17.3	0	0.3	-	2.8	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000128B	000026ND	000091IN	54	1.25	21.5	17.3	0.3	0	2.8	2.7	-	-	0.0	0.0	0	0	Surcharged
1	000129STMP	000099IN	000026ND	103	1.25	9.5	15.4	0	0.3	-	2.8	1.3	-	0.0	0.0	0	0	Sufficient Capacity
1	000165STMP	000025SMH	000050SMH	192	4	201.9	16.0	1.3	0	1.6	-	-	-	0.0	0.0	0	0	Surcharged
1	000168STMP	000047IN	000032ND	11	1.25	19.3	15.4	0.4	0.4	Flooded	Flooded	Flooded	Flooded	0.4	0.1	5776	2	Flooded
1	000169STMP	000026SMH	000034ND	24	1.5	34.2	19.3	0.4	0	1.2	-	1.3	-	0.0	0.0	0	0	Insufficient Freeboard
1	000176STMP	000054IN	000027SMH	102	1	7.5	9.4	0.6	0.5	Flooded	Flooded	Flooded	Flooded	0.6	0.3	2339	800	Flooded
1	000177STMP	000055IN	000002IN	48	1	6.1	7.8	0.2	0.3	1.5	1.3	1.1	-	0.0	0.0	0	0	Insufficient Freeboard
1	000178STMP	000056IN	000039ND	65	3.5	11.2	3.9	0.4	0.4	0.6	1.3	-	-	0.0	0.0	0	0	Surcharged
1	000179STMP	000001IN	000054IN	13	0.833	7.0	12.5	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.4	0.6	1712	2339	Flooded
1	000180STMP	000039ND	000001IN	52	2	11.2	5.3	0.4	0.6	2.8	Flooded	-	Flooded	0.0	0.4	0	1712	Surcharged
1	000181STMP	000002IN	000027SMH	62	1	6.1	8.3	0.3	0.5	1.6	Flooded	-	Flooded	0.0	0.3	0	800	Surcharged
1	000182STMP	000004IN	000003IN	5	1	3.9	4.8	0.1	0	0.1	-	0.9	-	0.0	0.0	0	0	Insufficient Freeboard
1	000183STMP	000027SMH	000046IN	68	1.25	10.2	10.0	0.5	0.7	Flooded	4.0	Flooded	0.7	0.3	0.0	800	0	Flooded
1	000184STMP	000003IN	000052SMH	48	1.5	3.9	5.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000187STMP	000003CB	000005IN	60	2	7.0	4.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000188STMP	000005IN	000002CB	7	2	7.1	3.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000189STMP	000002CB	000025SMH	44	2	7.1	4.7	0	1.3	2.1	3.6	-	-	0.0	0.0	0	0	Surcharged
1	000192STMP	000140IN	000037ND	125	1.25	10.4	10.3	0	0	-	3.3	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000202STMP	000032SMH	000003CB	32	2	7.1	5.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	000285STMP	000070SMH	000815IN	159	1.25	13.7	11.0	0.9	0.3	Flooded	2.5	Flooded	1.0	0.7	0.0	3251	0	Flooded
1	000286STMP	000814IN	000070SMH	65	1.5	13.3	9.3	0.8	0.9	Flooded	Flooded	Flooded	Flooded	0.8	0.7	9473	3251	Flooded
1	000337STMP	000815IN	000816IN	37	2	-13.8	-5.3	0.3	0.4	3.1	3.0	1.0	0.6	0.0	0	0	0	Insufficient Freeboard
1	000338STMP	000816IN	000817IN	44	2	-13.9	-5.2	0.4	0.4	3.2	Flooded	0.6	Flooded	0.0	0.1	0	257	Insufficient Freeboard
1	001196STMP	000466IN	000186SMH	30	1.5	17.5	9.8	0.3	0.3	2.1	1.8	0.3	0.2	0.0	0.0	0	0	Insufficient Freeboard
1	001197STMP	000471IN	000466IN	71	1.5	17.5	9.8	0.3	0.3	Flooded	2.0	Flooded	0.3	0.2	0.0	1255	0	Flooded

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
1	005775STMP	003765IN	001202SMH	60	1.5	18.2	10.1	0.4	0.4	5.1	Flooded	1.3	Flooded	0.0	0.4	0	4573	Insufficient Freeboard
1	005776STMP	003766IN	003765IN	150	1.5	18.2	10.0	0.4	0.4	6.3	5.0	0.5	1.3	0.0	0.0	0	0	Insufficient Freeboard
1	005779STMP	003769IN	000032IN	317	1.25	9.0	7.3	0.3	1.5	Flooded	Flooded	Flooded	Flooded	0.1	1.2	217	4578	Flooded
1	005780STMP	003772IN	003771IN	6	1	1.1	4.3	0	0.2	-	0.9	0.7	0.6	0.0	0.0	0	0	Sufficient Capacity
1	005781STMP	003771IN	003770IN	6	1	1.5	3.1	0.2	0.2	0.9	2.1	0.6	0.3	0.0	0.0	0	0	Insufficient Freeboard
1	005782STMP	003770IN	003769IN	6	1	1.6	2.4	0.2	0.3	2.1	Flooded	0.3	Flooded	0.0	0.1	0	217	Insufficient Freeboard
1	005783STMP	001203SMH	000046SMH	44	1.75	26.4	10.8	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.3	1.4	34149	138176	Flooded
1	005785STMP	001202SMH	001203SMH	229	1.75	34.6	14.1	0.4	1.4	Flooded	Flooded	Flooded	Flooded	0.4	1.3	4573	34149	Flooded
1	005789STMP	001204SMH	001205SMH	88	1.75	21.2	8.7	0	0.1	3.6	2.2	-	-	0.0	0.0	0	0	Surcharged
1	005790STMP	001206SMH	001204SMH	140	1.75	21.2	16.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	005791A	001205SMH	000477ND	67	1.75	31.2	15.3	0.1	0.2	2.3	3.3	-	-	0.0	0.0	0	0	Surcharged
1	005791B	000477ND	001202SMH	134	1.75	31.1	13.7	0.2	0.4	3.3	Flooded	-	Flooded	0.0	0.4	0	4573	Surcharged
1	005792STMP	003777IN	001206SMH	47	1.5	10.6	12.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	005793STMP	003780IN	003777IN	218	1.5	10.6	6.1	0	0	0.2	-	-	-	0.0	0.0	0	0	Surcharged
1	005794STMP	001207SMH	001206SMH	253	1.5	10.7	11.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	005795STMP	003778IN	001206SMH	31	1.5	0.0	0.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	005796STMP	003779IN	001207SMH	38	1.5	10.8	17.6	0	0	-	-	1.8	-	0.0	0.0	0	0	Sufficient Capacity
1	007724STMP	007482IN	000451CB	8	1	3.2	-4.1	0.6	0.2	1.0	0.2	0.3	0.5	0.0	0.0	0	0	Insufficient Freeboard
1	007725STMP	000451CB	000692ND	46	1	3.2	6.3	0.2	1	1.5	Flooded	0.5	Flooded	0.0	0.1	0	1	Insufficient Freeboard
1	007726STMP	007483IN	002579SMH	29	1.25	5.1	5.3	0.4	0.7	1.1	1.4	-	-	0.0	0.0	0	0	Surcharged
1	007727STMP	000693ND	007483IN	67	1.25	2.3	4.1	0	0.4	0.0	1.0	-	-	0.0	0.0	0	0	Surcharged
1	008606STMP	002549SMH	002578SMH	405	1.5	11.4	6.4	0.2	1	2.7	Flooded	0.9	Flooded	0.0	0.6	0	3604	Insufficient Freeboard
1	008607STMP	005530IN	005531IN	143	1.5	15.1	8.5	0.2	0.2	Flooded	1.5	Flooded	0.6	0.1	0.0	463	0	Flooded
1	008608STMP	005531IN	005532IN	110	1.75	15.2	7.4	0.2	0.2	1.5	2.0	0.6	0.2	0.0	0	0	0	Insufficient Freeboard
1	008609STMP	005533IN	005532IN	55	1.25	8.4	9.6	0.1	0.2	1.4	2.3	0.3	0.2	0.0	0	0	0	Insufficient Freeboard
1	008610STMP	005532IN	002550SMH	47	2	21.1	7.8	0.2	0.2	2.2	2.3	0.2	-	0.0	0.0	0	0	Insufficient Freeboard
1	008611STMP	002550SMH	005535IN	279	2	29.4	9.8	0.2	0.1	2.3	1.9	-	-	0.0	0.0	0	0	Surcharged
1	008612STMP	005534IN	005535IN	36	1	6.1	13.9	0	0.1	-	0.2	1.2	-	0.0	0.0	0	0	Sufficient Capacity
1	008613STMP	005536IN	005537IN	9	1	3.8	4.6	1	1	Flooded	Flooded	Flooded	Flooded	0.7	0.4	1405	394	Flooded
1	008614STMP	005537IN	002578SMH	59	1	3.7	5.0	1	1	Flooded	Flooded	Flooded	Flooded	0.4	0.6	394	3604	Flooded
1	008615STMP	005538IN	002573SMH	19	1.25	13.2	12.1	1	1	Flooded	Flooded	Flooded	Flooded	0.8	0.9	8416	8268	Flooded
1	008616STMP	002574SMH	005538IN	26	1.25	8.2	7.4	0.9	1	4.0	Flooded	-	Flooded	0.0	0.8	0	8416	Surcharged
1	008617STMP	002575SMH	002574SMH	18	1.25	8.2	10.6	0.2	0.9	0.4	1.8	-	-	0.0	0.0	0	0	Surcharged
1	008618STMP	005539IN	002575SMH	31	1.25	5.4	-4.3	1.3	0.2	1.6	0.4	1.1	-	0.0	0.0	0	0	Insufficient Freeboard
1	008619STMP	002576SMH	002575SMH	9	1	2.9	4.9	0.1	0.2	0.3	0.6	-	-	0.0	0.0	0	0	Surcharged
1	008620STMP	002577SMH	002576SMH	44	1	2.9	-3.7	0.3	0.1	0.8	0.2	-	-	0.0	0.0	0	0	Surcharged
1	008621A	002578SMH	000692ND	42	1.5	20.3	11.2	1	1	Flooded	Flooded	Flooded	Flooded	0.6	0.1	3604	1	Flooded
1	008621B	000692ND	002579SMH	182	1.5	20.6	11.4	1	0.7	Flooded	1.6	Flooded	-	0.1	0.0	1	0	Flooded
1	008622STMP	002573SMH	002578SMH	28	1.25	18.0	14.3	1	1	Flooded	Flooded	Flooded	Flooded	0.9	0.6	8268	3604	Flooded
1	008623STMP	005540IN	007482IN	8	1	3.3	4.1	0.2	0.6	0.5	1.0	0.0	0.3	0.0	0.0	0	0	Insufficient Freeboard
1	008866STMP	005522IN	002577SMH	69	1	2.9	-3.7	0.5	0.3	1.4	0.7	-	-	0.0	0.0	0	0	Surcharged
1	008867STMP	002593SMH	005538IN	180	1.25	11.8	9.3	0.8	1	Flooded	Flooded	Flooded	Flooded	0.5	0.8	3090	8416	Flooded
1	009020STMP	005523IN	002593SMH	22	1.75													

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
1	009026STMP	002547SMH	005525IN	76	1.25	2.7	3.0	0.5	0.5	4.0	Flooded	1.4	Flooded	0.0	0.1	0	53	Insufficient Freeboard
1	009027STMP	005526IN	002547SMH	76	1.25	1.9	5.1	0.4	0.5	1.9	3.9	1.6	1.4	0.0	0.0	0	0	Insufficient Freeboard
1	009028STMP	005527IN	002548SMH	22	1	6.8	8.6	0.2	0.3	1.3	1.4	1.3	0.5	0.0	0.0	0	0	Insufficient Freeboard
1	009029STMP	002548SMH	002549SMH	25	1.5	11.4	-6.4	0.3	0.2	1.2	0.7	0.5	0.9	0.0	0.0	0	0	Insufficient Freeboard
1	009030STMP	005529IN	005528IN	11	1	5.9	7.5	0.3	0.1	Flooded	0.3	Flooded	0.6	0.2	0.0	283	0	Flooded
1	009031STMP	005528IN	002548SMH	27	1	5.9	7.5	0.1	0.3	1.7	1.4	0.6	0.5	0.0	0.0	0	0	Insufficient Freeboard
1	014450STMP	000087IN	004212SMH	102	2	48.0	16.0	0.1	0	0.2	0.2	-	-	0.0	0.0	0	0	Surcharged
1	014452STMP	004212SMH	004211SMH	69	3	60.3	10.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014453STMP	000817IN	004216SMH	201	2	14.4	6.2	0.4	0.5	Flooded	4.2	Flooded	-	0.1	0.0	257	0	Flooded
1	014454STMP	004214SMH	000087IN	171	2	41.8	14.0	0.2	0.1	1.0	0.2	-	-	0.0	0.0	0	0	Surcharged
1	014455STMP	009302IN	004214SMH	64	2	36.8	13.4	0.2	0.2	0.6	1.0	1.2	-	0.0	0.0	0	0	Insufficient Freeboard
1	014456STMP	004215SMH	009302IN	26	2	36.5	13.3	0.1	0.2	Flooded	0.6	Flooded	1.2	0.0	0.0	1	0	Flooded
1	014457STMP	000006IO	004215SMH	16	1	7.0	8.8	0.6	0.1	Flooded	Flooded	Flooded	0.5	0.0	2811	1	Flooded	
1	014458STMP	004216SMH	004215SMH	279	2	32.0	10.1	0.5	0.1	4.2	Flooded	-	Flooded	0.0	0.0	0	1	Surcharged
1	014459STMP	004218SMH	004206SMH	112	5.5	274.6	21.2	0	0	-	-	-	0.0	0.0	0	0	Sufficient Capacity	
1	014460STMP	004217SMH	004218SMH	81	2	7.3	9.0	0	0	-	0.9	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014461STMP	009303IN	004218SMH	138	5.5	267.3	19.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014462STMP	009301IN	009303IN	166	6	267.1	14.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014463STMP	000084IN	000013SMH	170	3	105.4	18.3	0.6	0.9	1.8	Flooded	-	Flooded	0.0	0.6	0	11916	Surcharged
1	014468STMP	004205SMH	004206SMH	26	4.5	202.2	9.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014469STMP	004204SMH	004205SMH	161	4.5	202.2	-6.5	0	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
1	014472STMP	004202SMH	004204SMH	201	4.5	193.1	9.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014473STMP	004203SMH	004202SMH	56	4.5	63.1	4.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014479STMP	004211SMH	004203SMH	74	3	63.2	6.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014480STMP	004201SMH	004202SMH	116	3	130.9	18.5	0.7	0	1.8	-	-	-	0.0	0.0	0	0	Surcharged
1	014481STMP	000013SMH	004201SMH	64	3	120.5	-16.9	0.9	0.7	Flooded	1.8	Flooded	-	0.6	0.0	11916	0	Flooded
1	014483STMP	004210SMH	000091IN	186	6	507.7	24.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014487STMP	004209SMH	004210SMH	75	6	501.4	14.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014488STMP	004208SMH	004209SMH	155	6	501.0	17.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014489STMP	004207SMH	004208SMH	204	6	477.3	15.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014490STMP	004206SMH	004207SMH	124	6	477.0	19.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014494STMP	004213SMH	009301IN	106	6	248.0	19.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014495STMP	000051SMH	004213SMH	28	6	244.1	-7.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
1	014499STMP	000024ND	000025SMH	136	3.5	186.4	9.7	0.2	1.3	2.2	2.1	-	-	0.0	0.0	0	0	Surcharged
1	014521STMP	000032ND	000026SMH	147	1.5	34.2	19.0	0.4	0.4	Flooded	1.2	Flooded	1.3	0.1	0.0	2	0	Flooded
1	014522STMP	005535IN	000032ND	118	2	35.5	14.1	0.1	0.4	2.1	Flooded	-	Flooded	0.0	0.1	0	2	Surcharged
1	014526STMP	000024ND	000136IN	112	1	4.3	-2.7	0.2	0.1	4.2	0.6	-	-	0.0	0.0	0	0	Surcharged
1	014528STMP	000005SMH	000024ND	67	3.5	185.0	10.4	0.7	0.2	1.7	1.7	-	-	0.0	0.0	0	0	Surcharged
1	014530STMP	000039SMH	000005SMH	180	3.5	34.3	5.8	0.2	0.7	0.5	1.7	-	-	0.0	0.0	0	0	Surcharged
1	014531STMP	000038SMH	000005SMH	90	2	7.3	4.0	0.1	0.7	2.5	3.2	-	-	0.0	0.0	0	0	Surcharged
1	014532STMP	002579SMH	000050SMH	34	1.5	24.7	13.9	0.7	0	1.9	3.6	-	-	0.0	0.0	0	0	Surcharged
1	014538STMP	002110ND	000046SMH	21	3	244.4	33.9	1.4	1.4	Flooded	Flooded	Flooded	Flooded	1.4	1.4	72	138176	Flooded
2	000376STMP	000883IN	000882IN	78	1.5	11.2	6.3	0	0.1	2.9	2.4	-	-	0.0	0.0	0	0	Surcharged
2	000377STMP	000125ND	000883IN	70														

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
2	000383STMP	000313SMH	000010IO	90	2.5	92.5	18.7	0.3	0	2.7	-	0.8	0.3	0.0	0.0	0	0	Insufficient Freeboard
2	000384STMP	000310SMH	000313SMH	66	2.5	63.4	11.7	0.2	0.3	0.4	2.7	0.1	0.8	0.0	0.0	0	0	Insufficient Freeboard
2	000385STMP	000312SMH	000310SMH	102	1.5	17.4	9.8	0.3	0.2	Flooded	1.4	Flooded	0.1	0.3	0.0	787	0	Flooded
2	000386STMP	004911SMH	000314SMH	54	2.517	36.5	7.4	0.2	0	0.8	1.1	1.3	0.1	0.0	0.0	0	0	Insufficient Freeboard
2	000387STMP	000890IN	000886IN	246	1.25	11.8	10.3	0.3	0.3	Flooded	Flooded	Flooded	Flooded	0.2	0.1	415	17	Flooded
2	000404STMP	000085SMH	000121ND	149	2	49.0	16.7	0	0	3.0	0.8	-	-	0.0	0.0	0	0	Surcharged
2	000529STMP	000884IN	000311SMH	114	1.25	8.1	9.2	0	0.1	0.7	2.8	-	-	0.0	0.0	0	0	Surcharged
2	000609STMP	000084SMH	000859IN	35	3	107.0	14.5	0.2	0	0.4	-	1.9	-	0.0	0.0	0	0	Insufficient Freeboard
2	000610STMP	000861IN	000862IN	30	1.25	7.6	7.1	0	0.4	0.9	1.0	1.6	1.6	0.0	0.0	0	0	Insufficient Freeboard
2	000611STMP	000860IN	000861IN	6	0.833	-6.7	12.1	1.5	0	Flooded	-	Flooded	1.6	1.2	0.0	10603	0	Flooded
2	000612STMP	000862IN	000863IN	296	1.25	8.8	7.9	0.4	0.5	1.1	Flooded	1.6	Flooded	0.0	0.5	0	1791	Insufficient Freeboard
2	000613STMP	000863IN	000865IN	260	1.25	11.8	9.5	0.5	0.5	Flooded	4.3	Flooded	-	0.5	0.0	1791	0	Flooded
2	000614STMP	000864IN	000865IN	34	1.25	6.5	5.2	0.5	0.5	4.0	4.3	-	-	0.0	0.0	0	0	Surcharged
2	000615STMP	000865IN	000866IN	183	1.25	15.8	12.6	0.5	0	4.3	-	-	-	0.0	0.0	0	0	Surcharged
2	000618STMP	000305SMH	000869IN	93	1.75	26.1	18.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000619STMP	000869IN	000003IO	89	1.75	26.1	14.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000620STMP	000866IN	000305SMH	150	1.25	15.8	16.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	000621STMP	000871IN	000007IO	93	3.354	93.3	10.5	0.4	0.5	1.1	Flooded	1.3	Flooded	0.0	0.5	0	13663	Insufficient Freeboard
2	000622STMP	000872IN	000871IN	54	2	58.1	9.2	0.4	0.4	2.1	2.1	0.4	1.3	0.0	0.0	0	0	Insufficient Freeboard
2	000624STMP	000874IN	000872IN	271	2	25.6	8.1	0.4	0.4	Flooded	1.8	Flooded	0.4	0.3	0.0	2865	0	Flooded
2	000625STMP	000873IN	000872IN	183	2	25.7	8.1	0.3	0.4	Flooded	1.8	Flooded	0.4	0.1	0.0	139	0	Flooded
2	001387STMP	000071SMH	000073SMH	105	1.5	27.6	15.3	0.5	0.5	Flooded	3.6	Flooded	-	0.5	0.0	7305	0	Flooded
2	001389STMP	000083SMH	000074SMH	53	3	76.5	10.8	0	0	1.4	-	-	-	0.0	0.0	0	0	Surcharged
2	001390STMP	000074SMH	000858IN	34	3	76.4	19.7	0	1.5	0.2	Flooded	-	Flooded	0.0	0.7	0	14202	Surcharged
2	001391STMP	000822IN	000083SMH	109	3	66.4	15.5	0	0	-	1.2	-	-	0.0	0.0	0	0	Sufficient Capacity
2	001393STMP	000858IN	000824IN	245	3	-91.4	-12.8	1.5	0.4	Flooded	0.2	Flooded	1.8	0.7	0.0	14202	0	Flooded
2	001395STMP	000826IN	000085SMH	5	1.25	-12.7	10.3	0.6	0	0.7	-	0.6	-	0.0	0.0	0	0	Insufficient Freeboard
2	001396STMP	000827IN	000826IN	6	1.25	-12.7	10.3	0.6	0.6	Flooded	0.7	Flooded	0.6	0.5	0.0	4258	0	Flooded
2	001397STMP	000097SMH	000086SMH	334	2	44.4	14.3	1.8	1.8	Flooded	Flooded	Flooded	Flooded	1.7	1.6	14721	12790	Flooded
2	001398STMP	000086SMH	000085SMH	27	2	48.2	15.2	1.8	0	Flooded	3.0	Flooded	-	1.6	0.0	12790	0	Flooded
2	001400STMP	0000073IO	000098SMH	13	2.5	-54.7	12.0	1.7	1.8	Flooded	Flooded	Flooded	Flooded	1.7	1.6	86903	27252	Flooded
2	001401STMP	000828IN	000033CB	7	1.25	12.7	10.3	0.3	0.2	Flooded	0.3	Flooded	0.4	0.2	0.0	341	0	Flooded
2	001402STMP	000033CB	000060ND	25	1.25	12.7	10.3	0.2	1.7	1.8	Flooded	0.4	Flooded	0.0	1.5	0	15	Insufficient Freeboard
2	001404STMP	000831IN	000859IN	61	1.25	3.8	4.4	0	0	-	0.6	-	0.0	0.0	0	0	Sufficient Capacity	
2	001705STMP	000875IN	000818IN	267	2.5	46.4	9.3	0.9	1.1	Flooded	Flooded	Flooded	Flooded	0.8	0.9	35871	17183	Flooded
2	001707STMP	000818IN	000822IN	189	2.5	52.5	10.5	1.1	0	Flooded	-	Flooded	-	0.9	0.0	17183	0	Flooded
2	001767STMP	000123ND	000873IN	117	1.5	26.9	14.7	0.4	0.3	Flooded	Flooded	Flooded	Flooded	0.2	0.1	71	139	Flooded
2	001775STMP	000823IN	000084SMH	42	1.25	14.7	11.9	0.2	0.2	1.5	1.8	0.6	1.9	0.0	0.0	0	0	Insufficient Freeboard
2	001776STMP	000824IN	000084SMH	42	3	94.1	12.8	0.4	0.2	0.5	0.2	1.8	1.9	0.0	0.0	0	0	Insufficient Freeboard
2	001777STMP	000073SMH	000858IN	155	1.5	27.6	17.3	0.5	1.5	3.7	Flooded	-	Flooded	0.0	0.7	0	14202	Surcharged
2	001778STMP	000878IN	000309SMH	71	1.5	19.9	11.2	0.9	0.4	Flooded	1.7	Flooded	0.3	0.7	0.0	4307	0	Flooded
2	001779STMP	000009IO	000878IN	8	1.25	16.8	13.6	0.9	0.9	Flooded	Flooded	Flooded	Flooded	0.9	0.7	1		

TABLE 1  
Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
2	002411STMP	001292IN	000890IN	251	1.25	13.5	11.1	0.2	0.3	Flooded	Flooded	Flooded	Flooded	0.1	0.2	147	415	Flooded
2	014497STMP	000066IO	000117ND	68	5	440.4	25.0	0	0.2	RIM	2.6	RIM	0.4	0.0	0.0	0	0	Insufficient Freeboard
2	014500STMP	000121ND	000074IO	35	4	157.6	17.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014501STMP	000859IN	000121ND	33	3.5	110.9	13.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014504STMP	004068SMH	000313SMH	32	2.5	36.5	-7.4	0.3	0.3	1.5	1.2	0.3	0.8	0.0	0.0	0	0	Insufficient Freeboard
2	014523STMP	000060ND	000097SMH	28	2	49.7	15.6	1.7	1.8	Flooded	Flooded	Flooded	Flooded	1.5	1.7	15	14721	Flooded
2	014524STMP	000098SMH	000060ND	8	2	44.7	14.0	1.8	1.7	Flooded	Flooded	Flooded	Flooded	1.6	1.5	27252	15	Flooded
2	014536STMP	000314SMH	004068SMH	75	3 x 4.5	36.5	8.1	0	0.3	0.0	0.7	0.1	0.3	0.0	0.0	0	0	Insufficient Freeboard
2	014970STMP	000890IN	009919IN	62	1	12.3	15.1	0.3	0	Flooded	-	Flooded	-	0.2	0.0	415	0	Flooded
2	014972STMP	009919IN	004912SMH	78	2.5	12.3	6.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014974STMP	009928IN	009922IN	141	2.517	25.1	5.3	0	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
2	014975STMP	009922IN	009923IN	92	2.517	24.7	5.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014976STMP	004912SMH	009923IN	185	2	12.5	5.9	0	0	-	0.5	-	-	0.0	0.0	0	0	Sufficient Capacity
2	014977STMP	009923IN	004911SMH	51	2.517	36.5	10.2	0	0.2	-	0.6	-	1.3	0.0	0.0	0	0	Sufficient Capacity
2	014990STMP	000007IO	000875IN	170	2.5	67.5	15.6	0.5	0.9	Flooded	Flooded	Flooded	Flooded	0.5	0.8	13663	35871	Flooded
3	000121STMP	000014SMH	000015SMH	128	6	533.7	20.6	0	0	-	0.0	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000122STMP	000092IN	000015SMH	62	1.25	11.6	9.4	0.1	0	0.9	-	-	-	0.0	0.0	0	0	Surcharged
3	000124STMP	000015SMH	000015IO	61	6	544.4	19.3	0	0	0.0	-	-	-	0.0	0.0	0	0	Surcharged
3	000134STMP	000022SMH	000017SMH	42	2.5	67.0	13.5	0.4	0.3	6.0	4.9	0.2	0.4	0.0	0.0	0	0	Insufficient Freeboard
3	000135STMP	000104IN	000030ND	21	1.5	3.4	3.6	0.1	0.4	1.6	2.7	1.6	1.8	0.0	0.0	0	0	Insufficient Freeboard
3	000136STMP	000105IN	000104IN	7	1	3.4	5.5	0.1	0.1	0.2	0.3	1.3	1.6	0.0	0.0	0	0	Insufficient Freeboard
3	000140STMP	000018SMH	000016IO	34	3	86.7	23.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000141STMP	000019SMH	000018SMH	29	2.5	80.0	20.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000142STMP	000109IN	000018SMH	51	3	6.6	6.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000143STMP	000006IN	000109IN	9	1.5	6.6	14.4	0	0	-	-	1.3	-	0.0	0.0	0	0	Sufficient Capacity
3	000148STMP	000020SMH	000022SMH	32	2	23.5	7.4	0.4	0.4	Flooded	6.5	Flooded	0.2	0.1	0.0	275	0	Flooded
3	000153STMP	000117IN	000021SMH	5	1.5	-5.5	9.3	0	0.2	1.4	2.5	1.5	0.5	0.0	0.0	0	0	Insufficient Freeboard
3	000154STMP	000120IN	000119IN	7	1	5.2	6.6	0.4	0.4	Flooded	Flooded	Flooded	Flooded	0.4	0.3	966	212	Flooded
3	000155STMP	000119IN	000118IN	8	1	4.9	6.2	0.4	0.4	Flooded	0.1	Flooded	0.7	0.3	0.0	212	0	Flooded
3	000156STMP	000118IN	000117IN	8	1	4.9	6.2	0.4	0	0.1	-	0.7	1.5	0.0	0.0	0	0	Insufficient Freeboard
3	000157STMP	000021SMH	000022SMH	47	2.5	46.0	9.3	0.2	0.4	5.8	5.6	0.5	0.2	0.0	0.0	0	0	Insufficient Freeboard
3	000161STMP	000024SMH	000023SMH	53	1.25	18.4	16.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000173STMP	000051IN	000035ND	9	1.5	5.5	5.8	0	0.1	0.5	0.8	-	1.8	0.0	0.0	0	0	Surcharged
3	000174STMP	000053IN	000052IN	6	1	5.2	6.6	0.5	0.5	Flooded	0.3	Flooded	0.2	0.5	0.0	1551	0	Flooded
3	000175STMP	000052IN	000051IN	7	1	-5.2	6.7	0.5	0	0.3	-	0.2	-	0.0	0.0	0	0	Insufficient Freeboard
3	000185STMP	000028SMH	000020SMH	129	1.5	25.4	17.9	0	0.4	-	Flooded	-	Flooded	0.0	0.1	0	275	Sufficient Capacity
3	000186STMP	000023SMH	000028SMH	74	1.5	18.4	19.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000194STMP	003074SMH	000030SMH	122	1.5	17.0	14.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	000195STMP	000009IN	000008IN	6	1	6.0	8.2	0.1	0.1	Flooded	0.5	Flooded	0.3	0.1	0.0	33	0	Flooded
3	000196STMP	000008IN	000007IN	5	1	6.0	7.6	0.1	0.2	0.5	0.5	0.3	0.7	0.0	0.0	0	0	Insufficient Freeboard
3	000197STMP	000007IN	000030SMH	9	1	6.0	7.6	0.2	0	0.5	-	0.7	-	0.0	0.0	0	0	Insufficient Freeboard
3	000199STMP	000057IN	000011IN	6	1	8.9	11.5	0.2	0	Flooded	-	Flooded	1.5	0.1	0.0	134	0	Flooded
3	000200STMP	000011IN	000010IN	7	1	8.9	14.8	0	0	-	-	1.5	-	0.0	0.0	0	0	Sufficient Capacity
3	000201STMP	000010IN	003074SMH	91</														

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
3	001183STMP	005770IN	000701IN	51	2	56.9	24.2	0	0	-	0.9	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001186STMP	000266SMH	000051IO	52	2	35.0	11.1	0.2	0	0.7	-	-	1.1	0.0	0.0	0	0	Surcharged
3	001745STMP	000286SMH	000063IO	62	1	1.2	4.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	001746STMP	000115ND	000286SMH	69	1	1.2	6.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008369STMP	005749IN	002892SMH	21	1.25	5.5	9.3	0	0.4	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008370STMP	005745IN	002892SMH	43	1.25	5.1	-4.7	0.5	0.4	2.4	1.7	0.7	-	0.0	0.0	0	0	Insufficient Freeboard
3	008371STMP	005740IN	002893SMH	9	1.25	0.0	0.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008372STMP	002893SMH	002891SMH	167	2	23.5	12.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008373STMP	002895SMH	002894SMH	96	2	20.1	6.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008374STMP	002896SMH	002895SMH	32	1.5	12.7	10.0	0	0	-	0.4	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008375STMP	000748ND	002896SMH	439	1.5	6.4	5.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008376STMP	002897SMH	002893SMH	261	2	23.5	7.5	0	0	0.7	-	-	-	0.0	0.0	0	0	Surcharged
3	008377STMP	002898SMH	002897SMH	25	1.5	24.0	13.5	0.1	0	1.5	1.0	1.2	-	0.0	0.0	0	0	Insufficient Freeboard
3	008378STMP	000756ND	002898SMH	130	1.5	24.4	13.6	0.2	0.1	Flooded	1.5	Flooded	1.2	0.1	0.0	60	0	Flooded
3	008379STMP	005750IN	002894SMH	23	1.5	10.2	-6.5	0.4	0	0.6	-	-	0.0	0.0	0	0	Surcharged	
3	008380STMP	005751IN	002895SMH	8	1.25	7.4	6.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008385STMP	005757IN	002896SMH	19	1.25	6.6	5.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008386STMP	000531IO	002894SMH	63	0.833	2.9	5.4	0	0	0.1	-	0.9	-	0.0	0.0	0	0	Insufficient Freeboard
3	008393STMP	005764IN	000757ND	32	1	6.8	8.6	0.6	0.7	Flooded	3.5	Flooded	0.4	0.6	0.0	3107	0	Flooded
3	008394STMP	002892SMH	000757ND	384	1.25	9.4	7.5	0.4	0.7	4.7	3.2	-	0.4	0.0	0	0	Surcharged	
3	008467STMP	005756IN	000748ND	41	1.5	6.7	5.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008468STMP	000532IO	005756IN	7	1.25	6.7	10.8	0	0	-	-	0.9	-	0.0	0.0	0	0	Sufficient Capacity
3	008749STMP	002890SMH	000530IO	55	2	34.3	18.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008750STMP	005738IN	002890SMH	85	1.5	9.3	10.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008751STMP	005739IN	005738IN	110	1.5	9.3	8.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008807STMP	002894SMH	002901SMH	358	2	33.0	14.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008808STMP	005768IN	002901SMH	28	1.25	6.8	13.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008810STMP	002901SMH	002902SMH	52	2	39.6	22.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008811STMP	002900SMH	005770IN	86	1.25	13.8	23.4	0	0	-	0.1	-	-	0.0	0.0	0	0	Sufficient Capacity
3	008812STMP	002902SMH	005770IN	55	2	43.4	20.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	009015STMP	000757ND	002899SMH	15	1.25	13.8	11.1	0.7	0.7	3.2	2.1	0.4	1.6	0.0	0.0	0	0	Insufficient Freeboard
3	009016STMP	002899SMH	002900SMH	107	1.25	13.8	11.2	0.7	0	2.1	-	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
3	009077STMP	005823IN	003073SMH	43	1	4.2	-5.4	0.4	0	0.5	-	-	-	0.0	0.0	0	0	Surcharged
3	009079STMP	005825IN	005826IN	8	0.833	4.1	7.5	1.5	1.6	Flooded	0.9	Flooded	0.1	1.5	0.0	9092	0	Flooded
3	009081STMP	005826IN	005827IN	8	0.833	4.1	7.5	1.6	0	0.9	-	0.1	2.0	0.0	0	0	0	Insufficient Freeboard
3	009082STMP	005827IN	003073SMH	29	1	4.1	7.1	0	0	-	-	2.0	-	0.0	0.0	0	0	Sufficient Capacity
3	009083STMP	003073SMH	005828IN	37	1.5	8.3	14.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	009084STMP	005828IN	007695IN	198	1.5	8.3	15.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	009086STMP	007695IN	003074SMH	5	1.5	8.3	-5.7	0	0	0.0	-	-	-	0.0	0.0	0	0	Surcharged
3	009212STMP	002891SMH	002890SMH	200	2	23.5	16.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	009215STMP	005742IN	005743IN	6	1	5.5	7.9	0.4	0.5	Flooded	1.1	Flooded	0.1	0.4	0.0	1187	0	Flooded
3	009216STMP	005743IN	005744IN	5	1	5.3	6.8	0.5	0.5	1.1	1.4	0.1	0.4	0.0	0	0	0	Insufficient Freeboard
3	009217STMP	005744IN	005745IN	11	1	5.2	6.6	0.5	0.5	1.4	1.0	0.4	0.7	0.0	0	0	0	Insufficient Freeboard
3	009218STMP	005746IN	005747IN	7	1	5.6	7.1	0.9	0.9	Flooded	Flooded	Flooded	Flooded	0.9	0.7	4524	899	Flooded
3	009219STMP	005747IN	005748IN</td															

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
3	014476STMP	002210ND	000017IO	12	3	23.0	13.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	014477STMP	000030SMH	002210ND	11	2	23.0	11.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	014502STMP	000030ND	000019SMH	88	2.5	80.0	16.5	0.4	0	1.7	-	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
3	014503STMP	000017SMH	000030ND	243	2.5	67.1	13.5	0.3	0.4	5.1	1.7	0.4	1.8	0.0	0.0	0	0	Insufficient Freeboard
3	014505STMP	000035ND	000021SMH	222	2	41.1	16.0	0.1	0.2	0.3	2.7	1.8	0.5	0.0	0.0	0	0	Insufficient Freeboard
3	014541STMP	002106ND	005750IN	42	1	10.2	12.8	0.1	0.4	Flooded	1.1	Flooded	-	0.0	0.0	4	0	Flooded
3	014565STMP	002098ND	002902SMH	37	1.5	3.9	11.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
3	Link2989	000034ND	000035ND	235	2	34.5	10.9	0	0.1	4.1	0.3	-	1.8	0.0	0.0	0	0	Surcharged
4	000355STMP	000605IN	000510IN	8	1	2.6	6.7	0	0	-	-	1.0	1.6	0.0	0.0	0	0	Sufficient Capacity
4	000356STMP	000510IN	000511IN	6	1	2.6	6.9	0	2.3	-	0.6	1.6	1.7	0.0	0.0	0	0	Sufficient Capacity
4	000357STMP	000511IN	000208SMH	72	1.25	2.6	4.6	2.3	3.4	0.4	Flooded	1.7	Flooded	0.0	3.1	0	23302	Insufficient Freeboard
4	000358STMP	000207SMH	000208SMH	19	1.5	24.7	13.6	3.4	3.4	Flooded	Flooded	Flooded	Flooded	2.7	3.1	22958	23302	Flooded
4	000359STMP	000208SMH	000209SMH	18	1.5	28.2	15.7	3.4	3.4	Flooded	Flooded	Flooded	Flooded	3.1	3.4	23302	28365	Flooded
4	000360STMP	000512IN	000208SMH	30	1.5	16.2	10.6	3.4	3.4	Flooded	Flooded	Flooded	Flooded	2.4	3.1	3892	23302	Flooded
4	000665STMP	000568IN	000572IN	133	2	47.5	17.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000676STMP	000226SMH	000045IO	62	1.75	35.6	22.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000792STMP	000803IN	000804IN	23	1.25	6.3	5.2	0.6	0.2	2.1	2.1	0.2	0.7	0.0	0.0	0	0	Insufficient Freeboard
4	000793STMP	000804IN	000295SMH	37	1.25	6.3	7.9	0.2	1.2	2.3	2.9	0.7	0.3	0.0	0.0	0	0	Insufficient Freeboard
4	000796STMP	000295SMH	000203SMH	182	1.25	6.4	7.5	1.2	1.2	2.9	Flooded	0.3	Flooded	0.0	1.2	0	14903	Insufficient Freeboard
4	000802STMP	000758IN	000285SMH	10	1.25	-9.1	-7.4	0.6	0.3	1.2	0.4	0.4	0.8	0.0	0.0	0	0	Insufficient Freeboard
4	000803STMP	000285SMH	000111ND	25	1.25	9.2	10.1	0.3	0.5	2.0	5.5	0.8	1.2	0.0	0.0	0	0	Insufficient Freeboard
4	000804STMP	000757IN	000758IN	10	1.25	9.1	7.4	0.3	0.6	Flooded	1.2	Flooded	0.4	0.2	0.0	439	0	Flooded
4	000810STMP	000282SMH	000283SMH	71	2	68.9	21.4	0.5	0.6	8.1	7.3	0.4	0.2	0.0	0	0	0	Insufficient Freeboard
4	000820STMP	000767IN	000568IN	48	1.75	42.3	17.5	0.7	0	2.2	-	0.3	-	0.0	0.0	0	0	Insufficient Freeboard
4	000944STMP	001134IN	001135IN	8	1	7.2	10.4	0.3	0.4	Flooded	1.0	Flooded	1.1	0.3	0.0	914	0	Flooded
4	000945STMP	001135IN	001136IN	7	1	7.2	9.1	0.4	0.5	1.0	1.2	1.1	1.7	0.0	0.0	0	0	Insufficient Freeboard
4	000946STMP	001136IN	000044CB	14	1	7.2	9.1	0.5	0	1.2	-	1.7	-	0.0	0.0	0	0	Insufficient Freeboard
4	000947STMP	000044CB	000471SMH	38	1.25	7.2	5.8	0	0	0.6	0.2	-	-	0.0	0.0	0	0	Surcharged
4	000952STMP	001140IN	001141IN	9	1	6.4	10.4	0.1	0.1	0.4	0.9	0.1	0.7	0.0	0.0	0	0	Insufficient Freeboard
4	000953STMP	001141IN	000045CB	22	1	6.4	8.5	0.1	0.2	0.9	Flooded	0.7	Flooded	0.0	0.1	0	28	Insufficient Freeboard
4	000954STMP	000045CB	000475SMH	30	1.25	-6.1	-4.9	0.2	0.3	Flooded	2.6	Flooded	0.3	0.1	0.0	28	0	Flooded
4	000985STMP	000714IN	000267SMH	44	1.5	7.3	7.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000986STMP	000267SMH	000268SMH	75	1.5	7.3	10.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000989STMP	000269SMH	000270SMH	364	3	37.3	6.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000990STMP	000113ND	000269SMH	74	1.5	2.4	7.1	0	0	-	-	1.6	-	0.0	0.0	0	0	Sufficient Capacity
4	000992STMP	000035CB	000269SMH	11	1.5	15.2	9.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000994STMP	000277SMH	000275SMH	45	1.25	14.0	11.9	0.2	0.3	Flooded	2.8	Flooded	0.2	0.1	0.0	105	0	Flooded
4	000996STMP	000740IN	000278SMH	53	1.25	7.2	9.0	0	0.2	0.2	1.0	-	-	0.0	0.0	0	0	Surcharged
4	000997STMP	000278SMH	000277SMH	89	1.25	7.2	8.6	0.2	0.2	1.1	Flooded	-	Flooded	0.0	0.1	0	105	Surcharged
4	000998STMP	000741IN	000279SMH	37	1.25	-11.4	15.3	0	0	-	0.4	-	-	0.0	0.0	0	0	Sufficient Capacity
4	000999STMP	000742IN	000279SMH	75	1.25	7.9	6.6	0.1	0	1.5	1.3	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
4	001032STMP	001144IN	001145IN	7	1	4.8	11.5	0	0.1	-	0.7	0.9	1.7	0.0	0.0	0	0	Sufficient Capacity
4	001033STMP	001145IN	000473SMH	20	1	4.8	8.9	0.1	0.2	0.7	1.2							

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
4	001062B	000111ND	000056IO	134	5	454.2	23.1	0.5	0	1.7	-	1.2	1.7	0.0	0.0	0	0	Insufficient Freeboard
4	001065STMP	000292SMH	000297SMH	48	2	43.3	18.5	0.4	0.4	2.9	Flooded	0.1	Flooded	0.0	0.2	0	880	Insufficient Freeboard
4	001066STMP	000795IN	000297SMH	15	1.25	-3.1	10.5	0	0.4	0.7	Flooded	1.1	Flooded	0.0	0.2	0	880	Insufficient Freeboard
4	001067STMP	000796IN	000795IN	10	1.25	-2.9	3.4	0	0	-	-	0.2	1.1	0.0	0.0	0	0	Sufficient Capacity
4	001068STMP	000798IN	000795IN	18	1.25	0.4	2.2	0	0	-	-	1.3	1.1	0.0	0.0	0	0	Sufficient Capacity
4	001069STMP	000797IN	000798IN	9	1.25	8.1	6.6	0.5	0	Flooded	1.5	Flooded	1.3	0.5	0.0	3830	0	Flooded
4	001072STMP	000041CB	000116ND	57	1.25	-20.9	17.1	0.5	0.7	Flooded	Flooded	Flooded	Flooded	0.5	0.4	6198	21	Flooded
4	001073STMP	000800IN	000041CB	11	1.25	7.7	7.7	0.5	0.5	Flooded	Flooded	Flooded	Flooded	0.4	0.5	2143	6198	Flooded
4	001074STMP	000298SMH	000294SMH	291	2	33.7	16.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001075STMP	000294SMH	000292SMH	173	2	43.3	18.0	0	0.4	-	2.7	-	0.1	0.0	0.0	0	0	Sufficient Capacity
4	001076STMP	000801IN	000802IN	25	1	6.3	8.0	0.8	0.8	Flooded	0.8	Flooded	0.1	0.7	0.0	4666	0	Flooded
4	001077STMP	000802IN	000803IN	22	1	6.3	8.1	0.8	0.6	0.8	0.6	0.1	0.2	0.0	0.0	0	0	Insufficient Freeboard
4	001147STMP	000574IN	000576IN	33	1.25	8.7	8.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001148STMP	000571IN	000572IN	10	1	2.8	7.2	0	0	-	-	1.0	-	0.0	0.0	0	0	Sufficient Capacity
4	001149STMP	000573IN	000574IN	8	0.833	8.7	15.5	0.9	0	Flooded	0.3	Flooded	-	0.7	0.0	5678	0	Flooded
4	001150STMP	000575IN	000576IN	11	1	8.1	10.2	0.8	0	Flooded	-	Flooded	-	0.8	0.0	5758	0	Flooded
4	001151STMP	000576IN	000577IN	216	2.5	66.2	16.7	0	0.4	-	Flooded	-	Flooded	0.0	0.4	0	3040	Sufficient Capacity
4	001152STMP	000572IN	000576IN	211	2	50.3	17.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001153STMP	000577IN	000579IN	102	2.5	61.5	14.8	0.4	0.4	Flooded	4.3	Flooded	0.0	0.4	0.0	3040	0	Flooded
4	001155STMP	000579IN	000606IN	36	2.5	61.5	12.4	0.4	0	4.5	4.7	0.0	0.8	0.0	0.0	0	0	Insufficient Freeboard
4	001159STMP	000607IN	004065SMH	25	1	7.5	12.1	0.2	0.8	Flooded	5.6	Flooded	1.4	0.1	0.0	80	0	Flooded
4	001165STMP	000719IN	000720IN	11	1	6.3	8.0	0.2	0	Flooded	-	Flooded	1.6	0.0	0.0	2	0	Flooded
4	001169STMP	000722IN	000034CB	31	1.25	11.9	13.4	0	0.3	-	1.0	1.5	0.7	0.0	0.0	0	0	Sufficient Capacity
4	001170STMP	000034CB	000104ND	15	1.25	22.4	18.0	0.3	0.1	2.9	1.5	0.7	-	0.0	0.0	0	0	Insufficient Freeboard
4	001171STMP	000695IN	000034CB	21	1.25	-16.0	12.9	0.5	0.3	Flooded	2.9	Flooded	0.7	0.5	0.0	5030	0	Flooded
4	001220STMP	000720IN	000016ND	17	1.25	6.3	5.2	0	0	0.0	-	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
4	001221STMP	000118ND	000035CB	104	1.5	15.2	13.8	0	0	-	-	1.1	-	0.0	0.0	0	0	Sufficient Capacity
4	001223STMP	000721IN	000722IN	9	1.25	11.9	12.2	0	0	-	-	0.8	1.5	0.0	0.0	0	0	Sufficient Capacity
4	001224STMP	000271SMH	000282SMH	251	2	60.6	20.3	0.2	0.5	6.4	8.1	1.6	0.4	0.0	0.0	0	0	Insufficient Freeboard
4	001227A	000273SMH	000107ND	45	1.5	20.3	-11.4	0.8	0.8	Flooded	Flooded	Flooded	Flooded	0.7	0.4	14030	11	Flooded
4	001227B	000107ND	000272SMH	19	1.5	26.7	-15.0	0.8	0.6	Flooded	1.9	Flooded	0.5	0.4	0.0	11	0	Flooded
4	001270STMP	000493IN	000490IN	22	1.25	7.1	8.4	0.8	0.8	1.5	1.9	0.8	0.5	0.0	0.0	0	0	Insufficient Freeboard
4	001271STMP	000491IN	000492IN	7	1	7.1	9.0	0.7	0.7	Flooded	0.7	Flooded	0.3	0.7	0.0	4221	0	Flooded
4	001272STMP	000492IN	000493IN	16	1	7.1	12.6	0.7	0.8	0.7	1.7	0.3	0.8	0.0	0.0	0	0	Insufficient Freeboard
4	001273STMP	000485IN	000506IN	285	1.25	13.8	11.9	0.8	1.5	Flooded	Flooded	Flooded	Flooded	0.8	1.4	2424	7955	Flooded
4	001276STMP	000496IN	000506IN	12	1.25	11.5	9.2	1.4	1.5	Flooded	Flooded	Flooded	Flooded	1.3	1.4	2740	7955	Flooded
4	001277STMP	000497IN	000496IN	21	1.25	9.1	12.6	1.3	1.4	1.8	Flooded	0.3	Flooded	0.0	1.3	0	2740	Insufficient Freeboard
4	001278STMP	000498IN	000497IN	12	1	7.7	9.7	2.4	1.3	Flooded	0.4	Flooded	0.3	1.6	0.0	2733	0	Flooded
4	001279STMP	000499IN	000498IN	16	1	8.3	10.5	2.4	2.4	Flooded	Flooded	Flooded	Flooded	2.3	1.6	26200	2733	Flooded
4	001282STMP	000198SMH	000199SMH	24	1.25	12.1	-9.7	0.2	0.4	Flooded	2.1	Flooded	0.5	0.1	0.0	197	0	Flooded
4	001283STMP	000083ND	000198SMH	44	1	13.5	16.7	0.2	0.2	Flooded	Flooded	Flooded	Flooded	0.2	0.1	57	197	Flooded
4	001288STMP	000199SMH	000084ND	27	1.25	12.0	9.6	0.4	0.8	2.2	2.6	0.5	0.0	0.0	0	0	Insufficient Freeboard	
4	001289STMP	000506IN	0															

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
4	001305STMP	000202SMH	000206SMH	176	1.5	21.6	15.0	0	2.5	1.6	Flooded	-	Flooded	0.0	2.2	0	27443	Surcharged
4	001306STMP	000202SMH	000591IN	23	2	21.0	14.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001307STMP	000591IN	000204SMH	35	2	21.0	14.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001308STMP	000600IN	000207SMH	47	1.25	2.9	2.8	1.9	3.4	2.8	Flooded	1.0	Flooded	0.0	2.7	0	22958	Insufficient Freeboard
4	001594STMP	000728IN	000272SMH	27	1.5	-13.3	-7.4	0.4	0.6	Flooded	2.1	Flooded	0.5	0.3	0.0	1284	0	Flooded
4	001595STMP	000272SMH	000767IN	190	1.5	30.1	18.1	0.6	0.7	2.3	2.0	0.5	0.3	0.0	0.0	0	0	Insufficient Freeboard
4	001596STMP	000725IN	000107ND	8	1.25	8.9	7.7	0.7	0.8	Flooded	Flooded	Flooded	Flooded	0.6	0.4	1558	11	Flooded
4	001602STMP	000274SMH	000273SMH	206	1.5	22.8	13.9	0.3	0.8	Flooded	Flooded	Flooded	Flooded	0.2	0.7	1144	14030	Flooded
4	001603STMP	000275SMH	000274SMH	64	1.5	25.2	14.1	0.3	0.3	2.8	Flooded	0.2	Flooded	0.0	0.2	0	1144	Insufficient Freeboard
4	001605STMP	000276SMH	000275SMH	16	1.25	2.9	5.5	0.2	0.3	1.9	2.5	0.2	0.2	0.0	0.0	0	0	Insufficient Freeboard
4	001606STMP	000731IN	000276SMH	24	1	2.9	7.6	0.1	0.2	0.2	1.0	0.7	0.2	0.0	0.0	0	0	Insufficient Freeboard
4	001607STMP	000732IN	000731IN	6	1	2.9	5.2	0.1	0.1	0.1	0.2	0.5	0.7	0.0	0.0	0	0	Insufficient Freeboard
4	001608STMP	000733IN	000732IN	3	1	3.0	4.2	0.1	0.1	0.2	0.1	0.3	0.5	0.0	0.0	0	0	Insufficient Freeboard
4	001611STMP	000737IN	000736IN	13	1	9.0	11.4	0.1	0	Flooded	-	Flooded	1.5	0.1	0.0	135	0	Flooded
4	001613STMP	000736IN	000275SMH	41	1.25	9.1	12.6	0	0.3	0.7	2.4	1.5	0.2	0.0	0.0	0	0	Insufficient Freeboard
4	001631STMP	000486IN	000485IN	33	1	8.5	11.4	0.8	0.8	Flooded	Flooded	Flooded	Flooded	0.7	0.8	1072	2424	Flooded
4	001632STMP	000487IN	000486IN	33	1	8.8	11.4	0.8	0.8	Flooded	Flooded	Flooded	Flooded	0.8	0.7	7017	1072	Flooded
4	001637STMP	000515IN	000512IN	46	1.5	17.9	10.0	3.1	3.4	Flooded	Flooded	Flooded	Flooded	0.4	2.4	781	3892	Flooded
4	001638STMP	000518IN	000515IN	194	1.5	18.9	10.5	0.5	3.1	3.6	Flooded	Flooded	Flooded	0.0	0.4	0	781	Insufficient Freeboard
4	001639A	000209SMH	000087ND	233	1.5	23.9	13.3	3.4	3.4	Flooded	1.5	Flooded	0.8	3.4	0.0	28365	0	Flooded
4	001639B	000087ND	000041IO	66	1.5	26.1	14.7	3.4	0	1.5	-	0.8	0.3	0.0	0.0	0	0	Insufficient Freeboard
4	001646STMP	000526IN	000087ND	2	1.25	4.0	3.5	3.4	3.4	1.5	1.8	0.6	0.8	0.0	0.0	0	0	Insufficient Freeboard
4	001649STMP	000210SMH	000042IO	64	1.25	3.4	7.6	0	0	-	-	-	1.0	0.0	0.0	0	0	Sufficient Capacity
4	001680STMP	000203SMH	000587IN	271	1	9.7	12.0	1.2	0	Flooded	-	Flooded	-	1.2	0.0	14903	0	Flooded
4	001681STMP	000204SMH	000205SMH	93	2	21.0	10.5	0	2.2	-	1.7	-	0.3	0.0	0.0	0	0	Sufficient Capacity
4	001682STMP	000205SMH	000595IN	27	2	28.4	10.7	2.2	2.4	2.5	Flooded	0.3	Flooded	0.0	2.2	0	20708	Insufficient Freeboard
4	001683STMP	000595IN	000206SMH	12	1.5	19.3	10.9	2.4	2.5	Flooded	Flooded	Flooded	Flooded	2.2	2.2	20708	27443	Flooded
4	001684STMP	000206SMH	000207SMH	115	1.5	25.7	14.2	2.5	3.4	Flooded	Flooded	Flooded	Flooded	2.2	2.7	27443	22958	Flooded
4	001708STMP	000490IN	000485IN	64	1.25	9.9	10.2	0.8	0.8	1.9	Flooded	0.5	Flooded	0.0	0.8	0	2424	Insufficient Freeboard
4	001722STMP	000280SMH	000742IN	38	1.25	7.9	-6.3	0.2	0.1	2.2	1.5	0.6	1.8	0.0	0.0	0	0	Insufficient Freeboard
4	001723STMP	000743IN	000280SMH	27	1.25	7.9	6.4	0.1	0.2	1.8	2.0	0.3	0.6	0.0	0.0	0	0	Insufficient Freeboard
4	001724STMP	000279SMH	000728IN	162	1.5	19.0	10.7	0	0.4	1.8	Flooded	-	Flooded	0.0	0.3	0	1284	Surcharged
4	001725STMP	000281SMH	000108ND	35	1.25	2.7	7.8	0	0.1	0.2	3.8	-	-	0.0	0.0	0	0	Surcharged
4	001726STMP	000114ND	000281SMH	47	1.25	2.7	15.6	0	0	-	0.1	1.5	-	0.0	0.0	0	0	Sufficient Capacity
4	001729STMP	000747IN	000746IN	10	1	3.5	5.3	0	0	-	-	0.8	-	0.0	0.0	0	0	Sufficient Capacity
4	001730STMP	000748IN	000747IN	8	1	3.5	4.7	0	0	-	-	0.6	0.8	0.0	0.0	0	0	Sufficient Capacity
4	001731STMP	000746IN	000270SMH	62	1.25	3.5	8.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001732STMP	000750IN	000749IN	15	1	0.9	6.5	0	0	-	-	1.3	1.9	0.0	0.0	0	0	Sufficient Capacity
4	001733STMP	000753IN	000283SMH	32	1.75	-44.2	-18.7	0.6	0.6	Flooded	6.9	Flooded	0.2	0.5	0.0	17090	0	Flooded
4	001734STMP	000749IN	000036CB	49	1	0.9	8.9	0	0	-	-	1.9	-	0.0	0.0	0	0	Sufficient Capacity
4	001735STMP	000036CB	000109ND	67	1.25	-2.4	7.2	0	0.6	-	3.8	-	-	0.0	0.0	0	0	Sufficient Capacity
4	001736STMP	000283SMH	000284SMH	123	2	70.2	21.8	0.6	0.6	7.6	5.2	0.2	-	0.0	0.0	0	0	Insufficient Freeboard
4																		

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
4	002340STMP	001231IN	001230IN	6	1	6.6	8.4	0	0	0.5	-	1.9	-	0.0	0.0	0	0	Insufficient Freeboard
4	002341STMP	001232IN	001229IN	56	0.833	6.6	11.8	0.8	0.7	Flooded	0.7	Flooded	0.4	0.7	0.0	2867	0	Flooded
4	002342STMP	001233IN	001232IN	16	0.833	4.9	8.8	0.7	0.8	Flooded	Flooded	Flooded	Flooded	0.3	0.7	491	2867	Flooded
4	002343STMP	001234IN	001232IN	51	0.833	4.0	10.3	0	0.8	0.8	Flooded	1.8	Flooded	0.0	0.7	0	2867	Insufficient Freeboard
4	002344STMP	000051CB	001234IN	20	0.833	-4.0	-7.3	1	0	Flooded	-	Flooded	1.8	0.6	0.0	1895	0	Flooded
4	002345STMP	001230IN	001228IN	91	1.25	6.7	11.5	0	0.2	-	2.1	-	1.9	0.0	0.0	0	0	Sufficient Capacity
4	008814STMP	002903SMH	005777IN	12	1.25	7.2	7.1	0	0	-	-	1.8	-	0.0	0.0	0	0	Sufficient Capacity
4	008815STMP	005777IN	002904SMH	41	1.25	7.2	8.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	008816STMP	002904SMH	002905SMH	157	1.5	7.2	8.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	013304STMP	003499SMH	003500SMH	75	0.667	3.3	9.4	0.6	0.4	Flooded	0.8	Flooded	1.2	0.6	0.0	1593	0	Flooded
4	013305STMP	003500SMH	001424ND	113	0.667	3.6	11.1	0.4	0.4	0.9	2.3	1.2	1.4	0.0	0.0	0	0	Insufficient Freeboard
4	014492STMP	000606IN	004065SMH	13	2.5	61.6	-12.4	0	0.8	5.0	4.1	0.8	1.4	0.0	0.0	0	0	Insufficient Freeboard
4	014493STMP	004065SMH	000044IO	64	2	66.8	21.0	0.8	0	4.6	-	1.4	0.5	0.0	0.0	0	0	Insufficient Freeboard
4	014496STMP	000117ND	000291SMH	145	5	440.3	25.6	0.2	0.4	2.6	Flooded	0.4	Flooded	0.0	0.4	0	30199	Insufficient Freeboard
4	014506STMP	002905SMH	000758ND	30	2	7.2	4.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	014507STMP	000758ND	000268SMH	80	2	7.2	2.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	014508STMP	000268SMH	000016ND	257	2	14.2	5.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	014509STMP	000016ND	000269SMH	46	2	20.5	6.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	014511STMP	000104ND	000271SMH	41	2	60.6	21.7	0.1	0.2	6.0	6.4	-	1.6	0.0	0.0	0	0	Surcharged
4	014512STMP	000270SMH	000108ND	61	2	38.8	19.2	0	0.1	0.0	2.2	-	-	0.0	0.0	0	0	Surcharged
4	014513STMP	000116ND	000291SMH	30	2	50.8	16.0	0.7	0.4	Flooded	Flooded	Flooded	Flooded	0.4	0.4	21	30199	Flooded
4	014514STMP	000297SMH	000116ND	51	2	46.4	17.3	0.4	0.7	Flooded	Flooded	Flooded	Flooded	0.2	0.4	880	21	Flooded
4	014539STMP	000490SMH	000475SMH	26	1.25	15.0	12.1	0.2	0.3	Flooded	2.8	Flooded	0.3	0.2	0.0	650	0	Flooded
4	014561STMP	002099ND	000048IO	127	3	58.2	17.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
4	014563STMP	000798IN	000297SMH	22	1	8.1	10.3	0	0.4	1.8	Flooded	1.3	Flooded	0.0	0.2	0	880	Insufficient Freeboard
4	014988STMP	000108ND	000104ND	111	2	41.1	17.2	0.1	0.1	3.0	6.0	-	-	0.0	0.0	0	0	Surcharged
4	014991STMP	001424ND	000297SMH	42	1.5	6.2	9.2	0.4	0.4	1.9	Flooded	1.4	Flooded	0.0	0.2	0	880	Insufficient Freeboard
5	000362STMP	000022CB	000228SMH	46	1	8.9	12.2	0.4	0.6	Flooded	Flooded	Flooded	Flooded	0.3	0.5	1256	2677	Flooded
5	000365STMP	000637IN	000025CB	14	1	8.6	10.9	0.7	0.6	Flooded	Flooded	Flooded	Flooded	0.7	0.0	5337	11	Flooded
5	000366STMP	000025CB	000101ND	20	1.25	-9.4	8.6	0.6	0.7	Flooded	4.7	Flooded	0.6	0.0	0.0	11	0	Flooded
5	000368STMP	000235SMH	000233SMH	159	2	44.6	17.3	0	1.2	-	Flooded	-	Flooded	0.0	0.6	0	9603	Sufficient Capacity
5	000373STMP	000236SMH	000235SMH	72	1.75	38.4	16.0	0.2	0	1.0	-	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
5	000374STMP	000027CB	000235SMH	26	1	6.2	15.4	0	0	-	0.8	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000375STMP	000640IN	000027CB	8	0.833	6.2	11.3	0.2	0	Flooded	-	Flooded	-	0.2	0.0	274	0	Flooded
5	000419STMP	000641IN	000642IN	69	1.25	1.4	4.6	0.1	0.2	1.2	2.4	1.8	0.6	0.0	0.0	0	0	Insufficient Freeboard
5	000420STMP	000642IN	000643IN	12	2	44.7	14.0	0.2	0.3	4.2	3.4	0.6	1.1	0.0	0.0	0	0	Insufficient Freeboard
5	000421STMP	000644IN	000642IN	181	1.25	16.4	13.0	0.3	0.2	Flooded	2.4	Flooded	0.6	0.3	0.0	2009	0	Flooded
5	000422STMP	000643IN	000239SMH	49	2.5	44.6	10.0	0.3	0.3	3.4	3.4	1.1	-	0.0	0.0	0	0	Insufficient Freeboard
5	000426STMP	000237SMH	000008ND	132	2.5	71.4	14.4	0.4	0	6.3	4.3	-	-	0.0	0.0	0	0	Surcharged
5	000427STMP	000238SMH	000237SMH	251	2.5	61.5	12.3	0.5	0.4	6.8	6.3	0.2	-	0.0	0.0	0	0	Insufficient Freeboard
5	000428STMP	000239SMH	000238SMH	194	2.5	62.1	12.4	0.3	0.5	6.7	6.8	-	0.2	0.0	0.0	0	0	Surcharged
5	000429STMP	000229SMH	000631IN	45	1.25	19.9	16.0	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.6	0.5	5042	7262	Flooded
5	000430STMP	000028CB	000649IN	73	1	-7.0	-											

TABLE 1  
Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
5	000497STMP	000018CB	000618IN	616	1	5.4	7.0	1.8	1.8	Flooded	Flooded	Flooded	Flooded	1.3	0.6	2344	2352	Flooded
5	000498STMP	000612IN	000018CB	7	1	6.4	8.0	1.8	1.8	Flooded	Flooded	Flooded	Flooded	1.8	1.3	16197	2344	Flooded
5	000499STMP	000613IN	000019CB	6	1	4.8	8.7	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.6	0.4	2115	162	Flooded
5	000500STMP	000614IN	000225SMH	20	1	6.7	8.4	1.6	12.2	Flooded	2.0	Flooded	0.1	0.9	0.0	2496	0	Flooded
5	000501STMP	000615IN	000614IN	8	1	5.0	6.3	1.5	1.6	Flooded	Flooded	Flooded	Flooded	1.3	0.9	3771	2496	Flooded
5	000502STMP	000616IN	000615IN	8	1	4.1	5.2	1.4	1.5	Flooded	Flooded	Flooded	Flooded	1.4	1.3	5619	3771	Flooded
5	000503STMP	000225SMH	000624IN	30	1.25	6.7	-5.5	12.2	0.3	1.8	0.6	0.1	1.6	0.0	0.0	0	0	Insufficient Freeboard
5	000504STMP	000617IN	000621IN	88	1.25	8.7	7.0	0.7	0.6	Flooded	3.8	Flooded	-	0.3	0.0	566	0	Flooded
5	000560STMP	000228SMH	000229SMH	160	1	6.8	9.6	0.6	0.6	Flooded	Flooded	Flooded	Flooded	0.5	0.6	2677	5042	Flooded
5	000561STMP	000628IN	000022CB	46	1	5.8	10.4	0	0.4	-	Flooded	0.8	Flooded	0.0	0.3	0	1256	Sufficient Capacity
5	000564STMP	000631IN	000238SMH	96	1.5	24.1	13.4	0.6	0.5	Flooded	7.5	Flooded	0.2	0.5	0.0	7262	0	Flooded
5	000565STMP	000629IN	000628IN	17	1	5.8	9.2	0	0	-	-	0.8	0.8	0.0	0.0	0	0	Sufficient Capacity
5	000594STMP	000242SMH	000243SMH	282	1.5	25.0	14.8	0.6	1	Flooded	Flooded	Flooded	Flooded	0.5	0.8	6979	8331	Flooded
5	000595STMP	000651IN	000243SMH	11	1.25	21.3	18.3	0.9	1	Flooded	Flooded	Flooded	Flooded	0.9	0.8	10391	8331	Flooded
5	000596STMP	000652IN	000651IN	64	1.25	7.6	6.7	0.9	0.9	Flooded	Flooded	Flooded	Flooded	0.7	0.9	970	10391	Flooded
5	000597STMP	000243SMH	000244SMH	218	1.5	25.4	14.2	1	1.2	Flooded	Flooded	Flooded	Flooded	0.8	1.2	8331	16592	Flooded
5	000598STMP	000244SMH	000236SMH	196	1.5	24.9	15.1	1.2	0.2	Flooded	1.2	Flooded	1.6	1.2	0.0	16592	0	Flooded
5	000656A	000017CP	000008ND	90	8 x 6	814.1	19.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000656B	000008ND	000003ND	209	8 x 6	834.4	20.5	0	0	-	-	-	-	1.9	0.0	0.0	0	Sufficient Capacity
5	000656C	000003ND	000004ND	19	8 x 6	831.1	20.3	0	0	-	-	-	-	1.9	-	0.0	0.0	Sufficient Capacity
5	000656D	000004ND	000018CP	90	8 x 6	840.5	20.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000657STMP	000662IN	000005ND	40	1.25	4.2	10.6	0	0	-	5.5	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000658STMP	000663IN	000006ND	68	1.25	3.6	8.7	0	0	-	5.5	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000659STMP	000664IN	000663IN	48	1.25	3.6	4.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000660STMP	000665IN	000664IN	38	1.25	3.7	7.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000667STMP	000618IN	000617IN	11	1	8.7	10.8	1.8	0.7	Flooded	Flooded	Flooded	Flooded	0.6	0.3	2352	566	Flooded
5	000668STMP	000019CB	000614IN	619	1	4.5	5.6	0.6	1.6	Flooded	Flooded	Flooded	Flooded	0.4	0.9	162	2496	Flooded
5	000669STMP	000619IN	000621IN	56	1.25	3.2	6.5	0.4	0.6	0.8	2.4	1.7	-	0.0	0.0	0	0	Insufficient Freeboard
5	000670STMP	000620IN	000619IN	48	1	3.2	8.2	0	0.4	-	1.1	0.9	1.7	0.0	0.0	0	0	Sufficient Capacity
5	000671STMP	000621IN	000622IN	76	1.25	9.1	7.4	0.6	0.6	3.8	4.1	-	-	0.0	0.0	0	0	Surcharged
5	000672STMP	000622IN	000237SMH	39	1.5	18.9	12.9	0.6	0.4	4.3	5.6	-	-	0.0	0.0	0	0	Surcharged
5	000673B	0000096ND	000622IN	17	1.25	7.3	11.1	0.5	0.6	2.8	4.1	-	-	0.0	0.0	0	0	Surcharged
5	000674STMP	000624IN	0000096ND	34	1.25	6.9	12.0	0.3	0.5	1.0	2.8	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
5	000675STMP	000625IN	000009ND	40	1.25	2.0	6.4	0	0	-	5.4	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000737STMP	000250SMH	000678IN	75	1.25	0.0	0.0	0	0.3	-	1.4	-	1.5	0.0	0.0	0	0	Sufficient Capacity
5	000745STMP	000666IN	000253SMH	63	1.25	4.5	13.3	0	0	-	-	1.4	-	0.0	0.0	0	0	Sufficient Capacity
5	000746STMP	000255SMH	000239SMH	379	1.5	18.0	11.4	0	0.3	1.7	3.5	-	-	0.0	0.0	0	0	Surcharged
5	000747STMP	000683IN	000255SMH	92	1.25	9.9	9.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000748STMP	000682IN	000255SMH	63	1.25	8.4	9.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000749STMP	000684IN	000683IN	52	1.25	6.7	6.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	000750STMP	000685IN	000684IN	52	1.25	6.7	5.4	0	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
5	000862STMP	000633IN	000634IN	49	1.25	7.6	-6.6	1	0	1.3	-	0.4	-	0.0	0.0	0	0	Insufficient Freeboard
5	000863STMP	000634IN	000642IN	223	1.75	29.0	14.9	0	0.2	-	4.1	-	0.6	0.0	0.0	0	0	Sufficient Capacity
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TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
5	001129STMP	000686IN	000634IN	62	1	5.8	21.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001642STMP	000520IN	000521IN	125	1.25	14.4	15.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001643STMP	000521IN	000522IN	100	1.25	14.4	13.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001659STMP	000522IN	000214SMH	147	1.5	14.4	19.1	0	0.1	-	0.7	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001660B	000091ND	000213SMH	43	1.25	14.2	11.5	0	0	0.7	-	1.6	-	0.0	0.0	0	0	Insufficient Freeboard
5	001662STMP	000533IN	000091ND	6	1.5	14.3	8.1	0.1	0	0.8	0.4	-	1.6	0.0	0.0	0	0	Surcharged
5	001667STMP	000536IN	000537IN	200	1.25	18.9	15.2	0.1	0	6.7	-	0.8	-	0.0	0.0	0	0	Insufficient Freeboard
5	001669STMP	000537IN	000215SMH	278	1.25	18.9	18.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001670STMP	000214SMH	000533IN	91	1.5	14.4	8.6	0.1	0.1	0.7	0.8	-	-	0.0	0.0	0	0	Surcharged
5	001671STMP	000215SMH	000226SMH	79	1.25	33.0	18.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001673STMP	000538IN	000539IN	29	1.25	2.7	-2.3	3.1	0	0.5	-	0.0	-	0.0	0.0	0	0	Insufficient Freeboard
5	001674STMP	000539IN	000540IN	53	1.25	2.7	6.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001675STMP	000540IN	000542IN	85	1.25	7.4	10.0	0	0.2	-	1.8	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001676STMP	000541IN	000540IN	64	1.25	4.7	11.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001677STMP	000542IN	000253SMH	48	1.5	23.1	13.0	0.2	0	1.7	0.0	-	-	0.0	0.0	0	0	Surcharged
5	001678STMP	000216SMH	000542IN	101	1.25	11.3	12.5	0	0.2	-	1.7	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001679STMP	000217SMH	000216SMH	221	1.25	11.3	14.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001688STMP	000248SMH	000670IN	25	1.5	21.0	11.4	0	0	0.3	-	-	-	0.0	0.0	0	0	Surcharged
5	001689STMP	000249SMH	000669IN	66	1.5	9.1	6.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001690STMP	000671IN	000003ND	126	1.25	7.9	6.3	0.7	0	Flooded	5.6	Flooded	1.9	0.6	0.0	4556	0	Flooded
5	001691STMP	000672IN	000004ND	304	1.75	14.7	6.9	0.6	0	Flooded	5.0	Flooded	-	0.6	0.0	6454	0	Flooded
5	001692STMP	000673IN	000249SMH	335	1.5	9.1	7.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001693STMP	000669IN	000248SMH	22	1.5	9.2	6.3	0	0	-	0.2	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001694STMP	000670IN	000672IN	52	1.75	20.9	15.7	0	0.6	-	Flooded	-	Flooded	0.0	0.6	0	6454	Sufficient Capacity
5	001695STMP	000674IN	000673IN	68	1.5	9.2	10.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	001697STMP	000678IN	000674IN	89	1.25	9.2	7.7	0.3	0	1.5	-	1.5	-	0.0	0.0	0	0	Insufficient Freeboard
5	001700STMP	000256SMH	000687IN	25	2	60.4	19.0	0.1	0.7	4.3	Flooded	-	Flooded	0.0	0.4	0	1445	Surcharged
5	001702STMP	000010ND	000047IO	154	2	6.5	6.6	0	0	-	-	1.8	1.3	0.0	0.0	0	0	Sufficient Capacity
5	006816STMP	000253SMH	000008ND	261	2	27.5	10.6	0	0	-	4.8	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006860STMP	004835IN	004832IN	91	1.5	8.8	-5.0	54.9	0.2	Flooded	0.1	Flooded	0.9	0.3	0.0	972	0	Flooded
5	006861STMP	004832IN	004807IN	20	1.5	10.3	8.0	0.2	0.3	0.1	0.6	0.9	-	0.0	0.0	0	0	Insufficient Freeboard
5	006882STMP	001533SMH	000332IO	149	3.354	20.0	6.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006884STMP	004848IN	001530SMH	64	1.5	1.5	-1.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006885A	001530SMH	000600ND	19	1.5	1.5	4.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006885B	000600ND	001532SMH	52	1.5	1.5	5.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006887STMP	004807IN	004834IN	42	1.5	10.3	5.8	0.3	0.4	0.7	0.8	-	-	0.0	0.0	0	0	Surcharged
5	006888STMP	004834IN	001534SMH	79	1.5	-10.3	-5.9	0.4	0	0.9	-	-	-	0.0	0.0	0	0	Surcharged
5	006889STMP	001534SMH	004804IN	87	1.5	14.4	12.6	0	0	-	0.0	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006890STMP	001531SMH	001533SMH	69	3.354	1.5	-2.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006891STMP	004804IN	001533SMH	50	1.75	14.4	6.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006892STMP	001532SMH	001531SMH	48	3.354	1.5	1.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006914STMP	004904IN	000618ND	266	2.5	53.4	11.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006915STMP	001561SMH	004907IN	73	1.25	4.9	6.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006928STMP	004886IN	004887IN	68	1.25	4.0	8.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006929STMP	004905IN	004906															

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
5	006934STMP	001560SMH	004904IN	26	2	42.8	-13.5	2.9	0	2.8	0.2	-	-	0.0	0.0	0	0	Surcharged
5	006935STMP	004908IN	001560SMH	89	2	42.8	13.5	0.5	2.9	3.7	2.8	-	-	0.0	0.0	0	0	Surcharged
5	006936STMP	004910IN	004909IN	37	2	27.6	8.7	0.4	0	5.6	5.5	-	-	0.0	0.0	0	0	Surcharged
5	006937STMP	004911IN	004910IN	314	2	27.5	8.6	0.4	0.4	Flooded	5.4	Flooded	-	0.2	0.0	279	0	Flooded
5	006938STMP	001563SMH	004911IN	78	2	24.3	8.2	0.3	0.4	Flooded	Flooded	Flooded	Flooded	0.2	0.2	1046	279	Flooded
5	006939STMP	004912IN	001563SMH	178	1.5	16.9	9.5	0.4	0.3	3.6	Flooded	0.1	Flooded	0.0	0.2	0	1046	Insufficient Freeboard
5	006940STMP	004913IN	004912IN	148	1.5	14.2	7.9	0.4	0.4	Flooded	3.5	Flooded	0.1	0.4	0.0	4459	0	Flooded
5	006949STMP	004887IN	004884IN	140	1.25	4.0	7.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	006950STMP	004884IN	000619ND	128	1.5	4.0	17.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	014515STMP	000098ND	000256SMH	109	2	60.4	18.9	0.9	0.1	4.9	0.1	1.8	-	0.0	0.0	0	0	Insufficient Freeboard
5	014516STMP	000227SMH	000098ND	25	2	60.4	18.9	0.9	0.9	Flooded	4.9	Flooded	1.8	0.1	0.0	206	0	Flooded
5	014517STMP	000097ND	000227SMH	27	2	47.3	21.8	0.7	0.9	3.7	Flooded	2.0	Flooded	0.0	0.1	0	206	Insufficient Freeboard
5	014518STMP	000231SMH	000097ND	185	2	47.3	14.9	1	0.7	6.1	3.7	0.7	2.0	0.0	0.0	0	0	Insufficient Freeboard
5	014519STMP	000101ND	000231SMH	44	2	47.3	19.6	0.7	1	3.6	5.8	0.6	0.7	0.0	0.0	0	0	Insufficient Freeboard
5	014520STMP	000233SMH	000101ND	164	2	40.6	12.6	1.2	0.7	Flooded	3.6	Flooded	0.6	0.6	0.0	9603	0	Flooded
5	014535STMP	002107ND	000238SMH	35	1	7.3	13.8	0.2	0.5	Flooded	8.3	Flooded	0.2	0.1	0.0	10	0	Flooded
5	014551STMP	004919IN	004909IN	18	1.25	12.0	9.7	0.2	0	0.6	-	-	0.0	0.0	0	0	Surcharged	
5	014552STMP	000611ND	001563SMH	21	0.833	7.6	12.9	0.9	0.3	Flooded	Flooded	Flooded	Flooded	0.3	0.2	80	1046	Flooded
5	014562STMP	000687IN	002099ND	108	2	58.2	18.9	0.7	0	Flooded	-	Flooded	-	0.4	0.0	1445	0	Flooded
5	014567A	000017CP	000009ND	24	8 x 6	773.4	18.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	014567B	000009ND	000008ND	66	8 x 6	775.1	19.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	014567C	000008ND	000006ND	71	8 x 6	844.1	20.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	014567D	000006ND	000005ND	30	8 x 6	847.1	20.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	014567E	000005ND	000018CP	217	8 x 6	850.5	20.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
5	014989STMP	004907IN	004906IN	25	1.25	4.9	6.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000282STMP	000222SMH	000563IN	240	1.5	22.3	19.4	0	0.1	-	1.5	-	0.5	0.0	0.0	0	0	Sufficient Capacity
6	000283STMP	000254SMH	000252SMH	122	1.75	42.5	17.3	1.1	0	7.0	-	-	-	0.0	0.0	0	0	Surcharged
6	000516STMP	000550IN	000549IN	198	1.25	6.9	6.2	1.1	1.1	Flooded	Flooded	Flooded	Flooded	1.0	1.1	8282	20940	Flooded
6	000517STMP	000551IN	000551IN	55	1.25	4.5	11.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000518STMP	000218SMH	000552IN	40	1.25	18.8	15.1	1.5	0	Flooded	-	Flooded	-	1.1	0.0	2971	0	Flooded
6	000521STMP	000555IN	000222SMH	55	1.25	4.5	11.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000524STMP	000552IN	000556IN	22	1.25	18.8	16.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000525STMP	000556IN	000222SMH	33	1.25	18.8	18.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000527STMP	000219SMH	000220SMH	152	1.5	7.1	11.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000528STMP	000221SMH	000563IN	254	1.25	7.9	8.9	0	0.1	-	3.5	-	0.5	0.0	0.0	0	0	Sufficient Capacity
6	000663STMP	000220SMH	000566IN	83	1.5	7.1	5.7	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000740STMP	000251SMH	000257SMH	95	2	42.5	23.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000741STMP	000252SMH	000251SMH	189	2	42.5	22.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000744STMP	000565IN	000254SMH	44	1.75	12.3	8.8	0.2	1.1	1.9	7.0	-	0.0	0.0	0	0	Surcharged	
6	000861STMP	000549IN	000218SMH	65	1.25	19.9	15.8	1.1	1.5	Flooded	Flooded	Flooded	Flooded	1.1	1.1	20940	2971	Flooded
6	000901STMP	000561IN	000221SMH	38	1.25	2.4	6.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000902STMP	000562IN	000221SMH	30	1.25	5.7	9.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	000903STMP	000563IN	000254SMH	47	1.5	30.2	21.2	0.1	1.1	3.3	7.3	0.5	-	0.0	0.0	0	0	Insufficient Freeboard
6	000904STMP	000564IN	000565IN	29	1.5	12												

TABLE 1

## Taylor Run Detailed Hydraulic Model Results

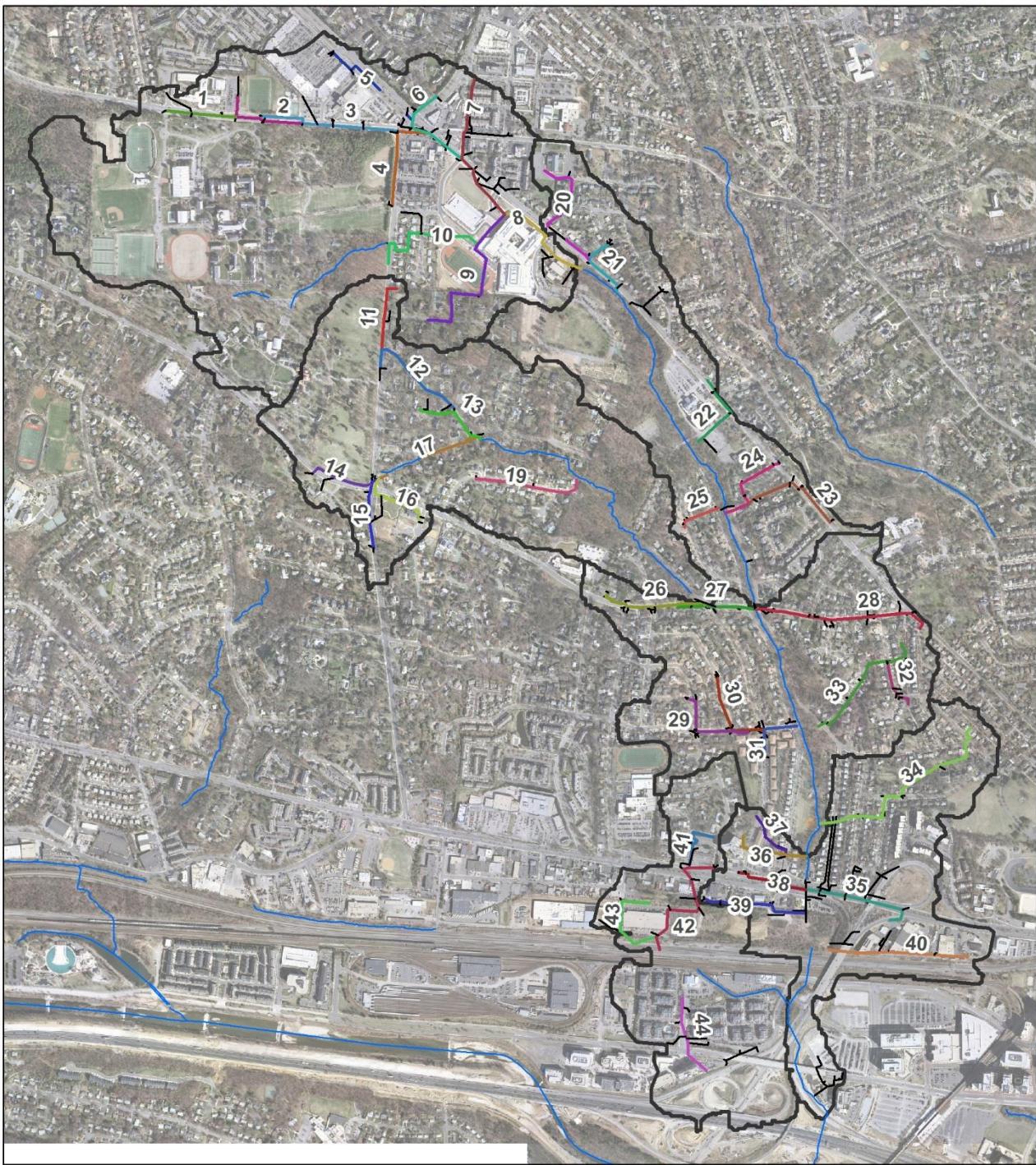
Subshed	DGravityMain FacilityID	Junction FacilityID		Length (ft)	Diameter/ Height x Width (ft)	Maximum Flow (ft³/s)	Maximum Velocity (fps)	Duration of Surcharge (hrs)		Surcharge/ Depth Above Crown (ft)		Insufficient Freeboard/ Depth Below Rim (ft)		Duration of Flooding (hrs)		Flooded Volume (ft³)		Summary Pipe Condition
		US	DS					US	DS	US	DS	US	DS	US	DS	US	DS	
6	001258STMP	002430IN	000817SMH	104	2	19.6	7.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	001259STMP	000818SMH	000814SMH	125	2	8.8	8.0	0	0	-	-	1.7	-	0.0	0.0	0	0	Sufficient Capacity
6	001260STMP	002431IN	002430IN	157	2	19.5	6.3	0	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
6	004147STMP	000814SMH	000813SMH	107	2	8.8	8.8	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004693STMP	004866IN	004865IN	48	1.5	11.6	9.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004695STMP	004867IN	004865IN	77	1.75	7.5	5.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004984STMP	004880IN	000335IO	233	4	91.6	8.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004985STMP	004871IN	004880IN	71	4	89.6	-7.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004986STMP	004872IN	001549SMH	197	1.5	4.6	4.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004987STMP	001549SMH	004871IN	44	4	89.6	9.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004988STMP	004879IN	000334IO	18	2	28.9	9.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	004989STMP	004878IN	004879IN	30	2	28.9	9.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	005041STMP	004877IN	004878IN	152	2	19.7	6.3	0	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
6	005043STMP	004876IN	004877IN	59	1.5	19.7	11.1	0.1	0	1.2	0.4	-	-	0.0	0.0	0	0	Surcharged
6	006894STMP	004873IN	004872IN	26	1.5	4.7	8.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	006895STMP	001548SMH	001549SMH	44	4	85.0	-8.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	006896STMP	001546SMH	004868IN	148	4	47.5	6.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	006897STMP	004868IN	001548SMH	22	4	78.0	10.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	006898STMP	001547SMH	004867IN	22	1.75	7.5	-4.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	006899STMP	004870IN	004869IN	96	2.5	26.1	6.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	006900STMP	004869IN	004868IN	55	2.5	26.1	6.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014464STMP	004064SMH	000816SMH	25	3.5	82.5	9.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014474STMP	000817SMH	002211ND	151	3	24.7	5.1	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014475STMP	002211ND	000813SMH	133	2.5	26.5	6.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014544STMP	000622ND	001548SMH	189	3.5	7.1	4.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014545STMP	004865IN	001546SMH	139	3	19.0	9.3	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014546STMP	000616ND	001546SMH	59	4	15.1	2.5	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014547STMP	000603ND	004870IN	60	2.5	26.0	6.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014549STMP	002103ND	004878IN	21	0.833	9.5	16.8	0.6	0	5.7	-	-	-	0.0	0.0	0	0	Surcharged
6	014553STMP	004066SMH	004064SMH	103	3.5	74.3	8.4	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014554STMP	009109IN	004066SMH	186	3.5	74.2	13.2	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014555STMP	004067SMH	009109IN	24	3.5	74.1	-7.8	0.1	0	0.1	-	-	-	0.0	0.0	0	0	Surcharged
6	014557STMP	000820SMH	004067SMH	255	3.5	74.1	7.6	0	0.1	0.1	0.1	-	-	0.0	0.0	0	0	Surcharged
6	014558STMP	000257SMH	000820SMH	44	3.5	42.8	8.6	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014559STMP	002105ND	000816SMH	229	4	37.8	4.0	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014560STMP	000815SMH	002105ND	116	3.5	37.8	4.9	0	0	-	-	-	-	0.0	0.0	0	0	Sufficient Capacity
6	014568STMP	002212ND	004064SMH	75	2	6.2	7.9	0	0	-	-	0.5	-	0.0	0.0	0	0	Sufficient Capacity



**TABLE 2**  
**Taylor Run Outfall Boundary Conditions**

<b>Node ID</b>	<b>Location</b>	<b>Boundary Condition</b>
000618ND	Taylor Run	Type 1, Free Outfall
000619ND	Taylor Run	Type 1, Free Outfall
000018CP	Taylor Run	Type 1, Free Outfall
000015IO	Taylor Run	Type 1, Free Outfall
000016IO	Taylor Run	Type 1, Free Outfall
000017IO	Taylor Run	Type 1, Free Outfall
000041IO	Taylor Run	Type 1, Free Outfall
000042IO	Taylor Run	Type 1, Free Outfall
000044IO	Taylor Run	Type 1, Free Outfall
000045IO	Taylor Run	Type 1, Free Outfall
000047IO	Taylor Run	Type 1, Free Outfall
000050IO	Taylor Run	Type 1, Free Outfall
000051IO	Taylor Run	Type 1, Free Outfall
000055IO	Taylor Run	Type 1, Free Outfall
000056IO	Taylor Run	Type 1, Free Outfall
000062IO	Taylor Run	Type 1, Free Outfall
000063IO	Taylor Run	Type 1, Free Outfall
000172IO	Taylor Run	Type 1, Free Outfall
000332IO	Taylor Run	Type 1, Free Outfall
000334IO	Taylor Run	Type 1, Free Outfall
000335IO	Taylor Run	Type 1, Free Outfall
000530IO	Taylor Run	Type 1, Free Outfall





#### Legend

<b>Profiles</b>	4	9	14	20	25	30	35	40	Subwatersheds
N/A	5	10	15	21	26	31	36	41	City of Alexandria
—	—	—	—	—	—	—	—	—	Streams
—	1	6	11	16	22	27	32	37	42
—	2	7	12	17	23	28	33	38	43
—	3	8	13	19	24	29	34	39	44

#### Taylor Run Profile Locations

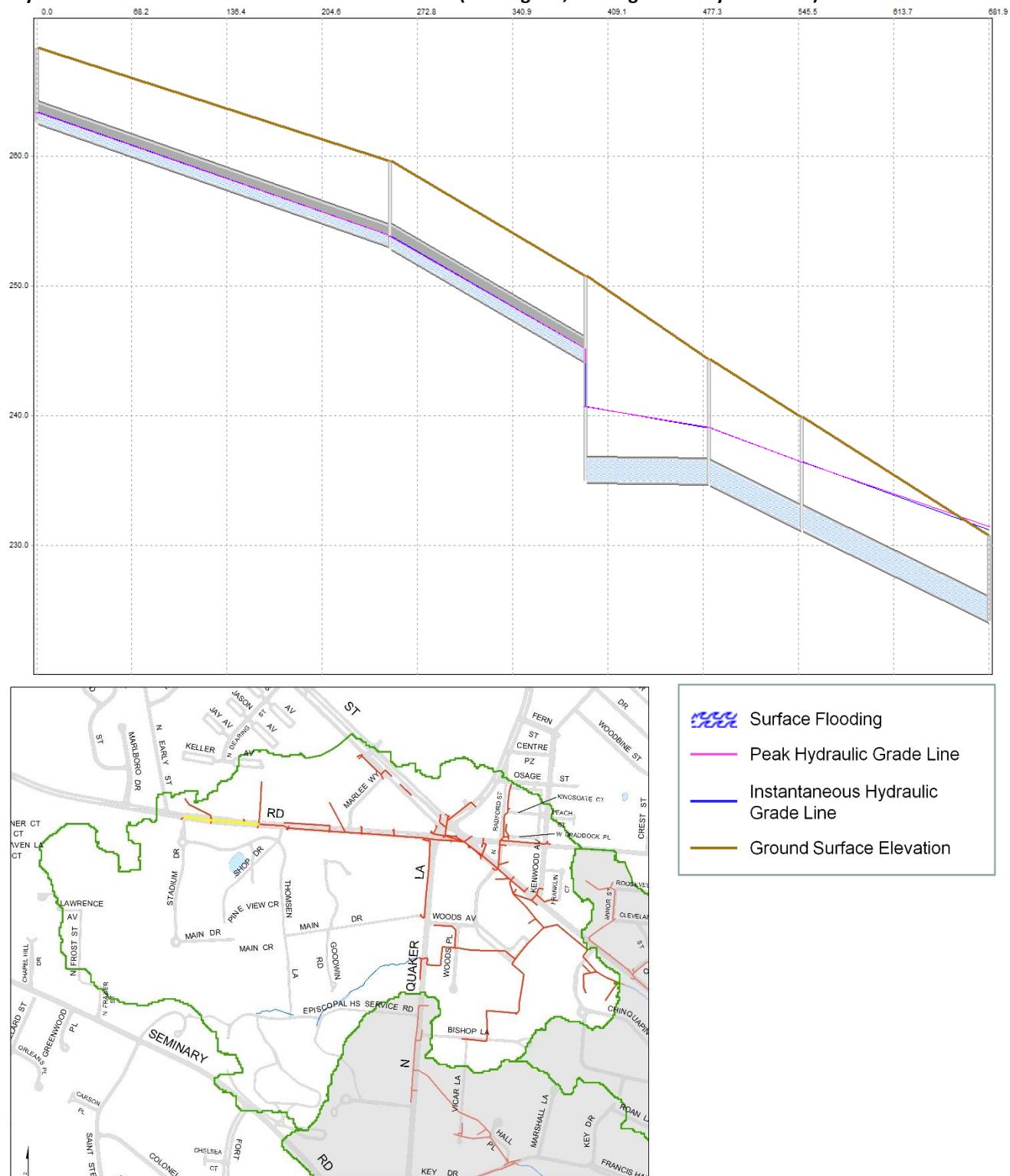
Stormwater Capacity Analysis for  
Taylor Run Watershed, City of  
Alexandria, Virginia

0 500 1,000 2,000  
Feet



FIGURE 1

Taylor Run Profile 1 from 001207SMH to 001202SMH (Existing IDF, Existing Boundary Condition)



## FIGURE 2

## Taylor Run Profile 2 from 003767IN to 000046SMH (Existing IDF, Existing Boundary Condition)

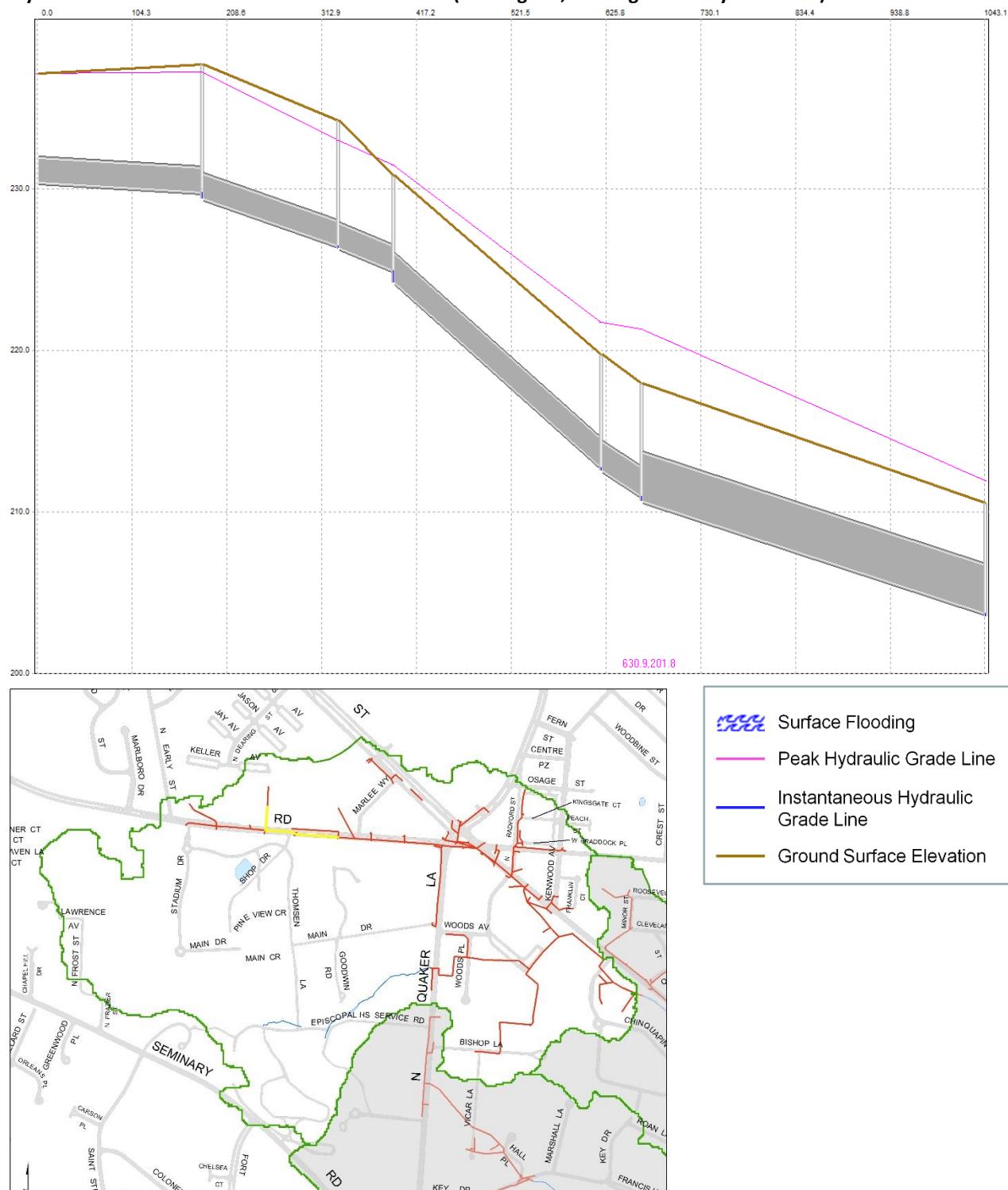


FIGURE 3

Taylor Run Profile 3 from 003769IN to 000003SMH (Existing IDF, Existing Boundary Condition)

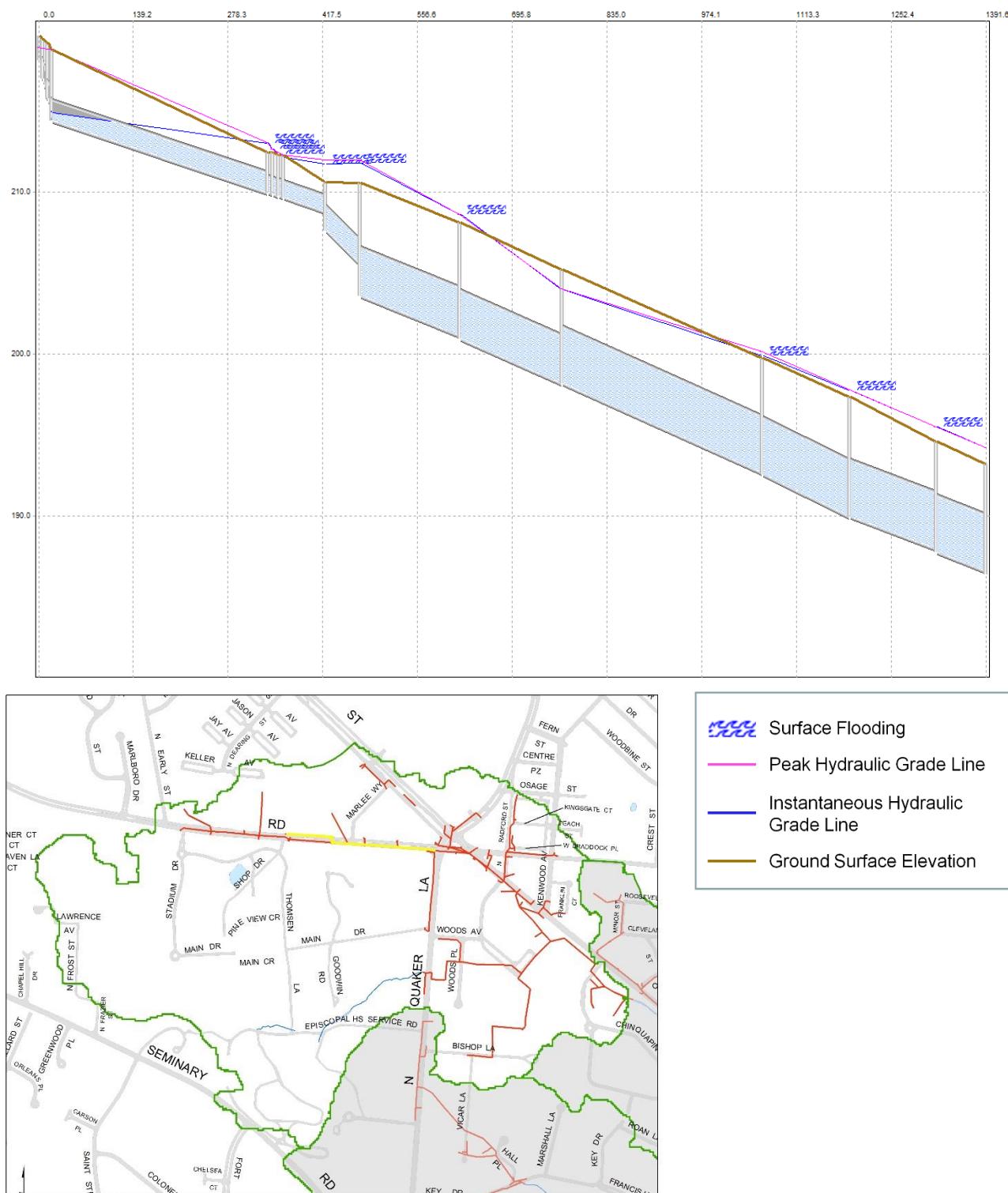


FIGURE 4

Taylor Run Profile 4 from 000075IN to 000005SMH (Existing IDF, Existing Boundary Condition)

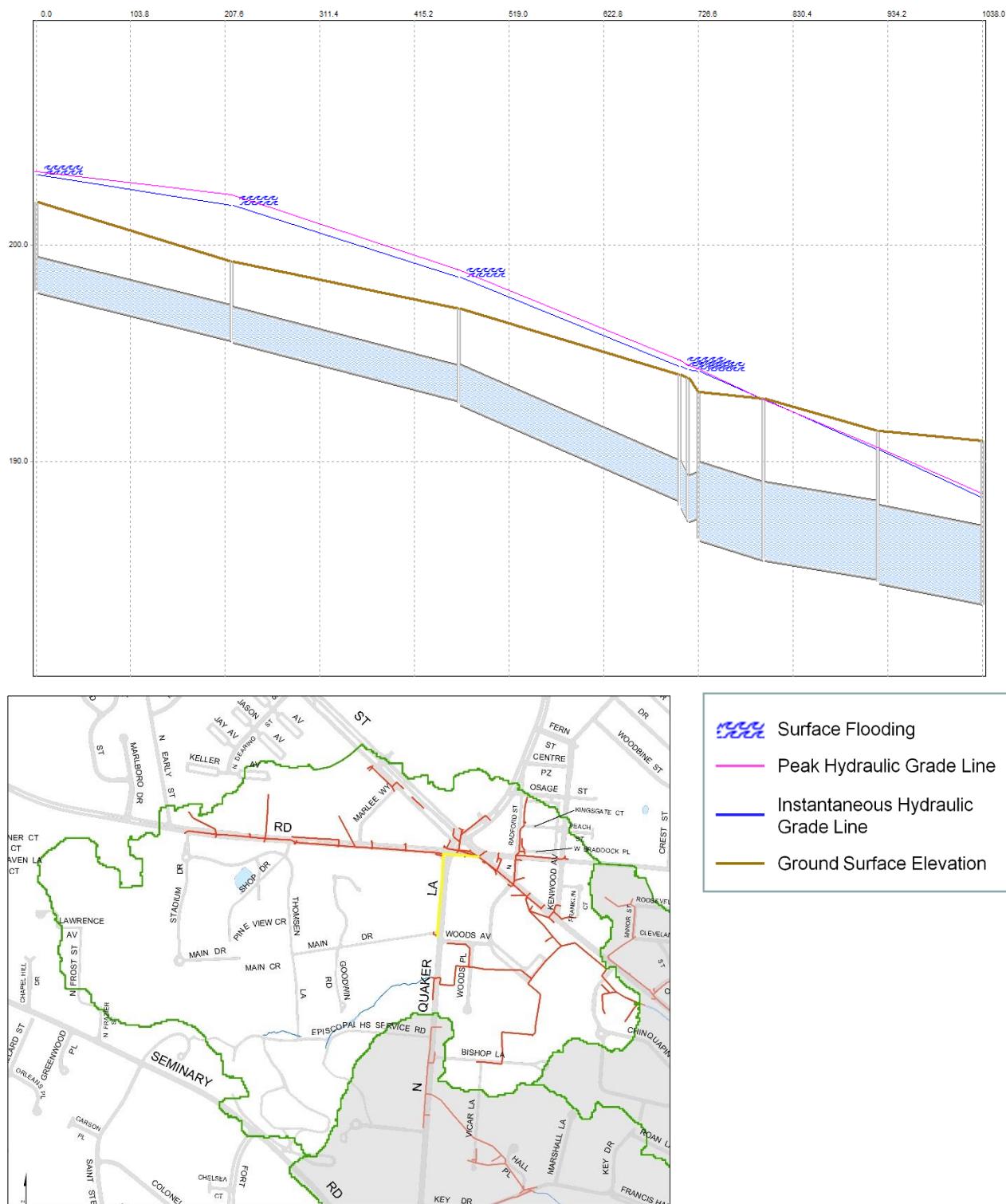


FIGURE 5

**Taylor Run Profile 5 from 000471IN to 000002SMH (Existing IDF, Existing Boundary Condition)**

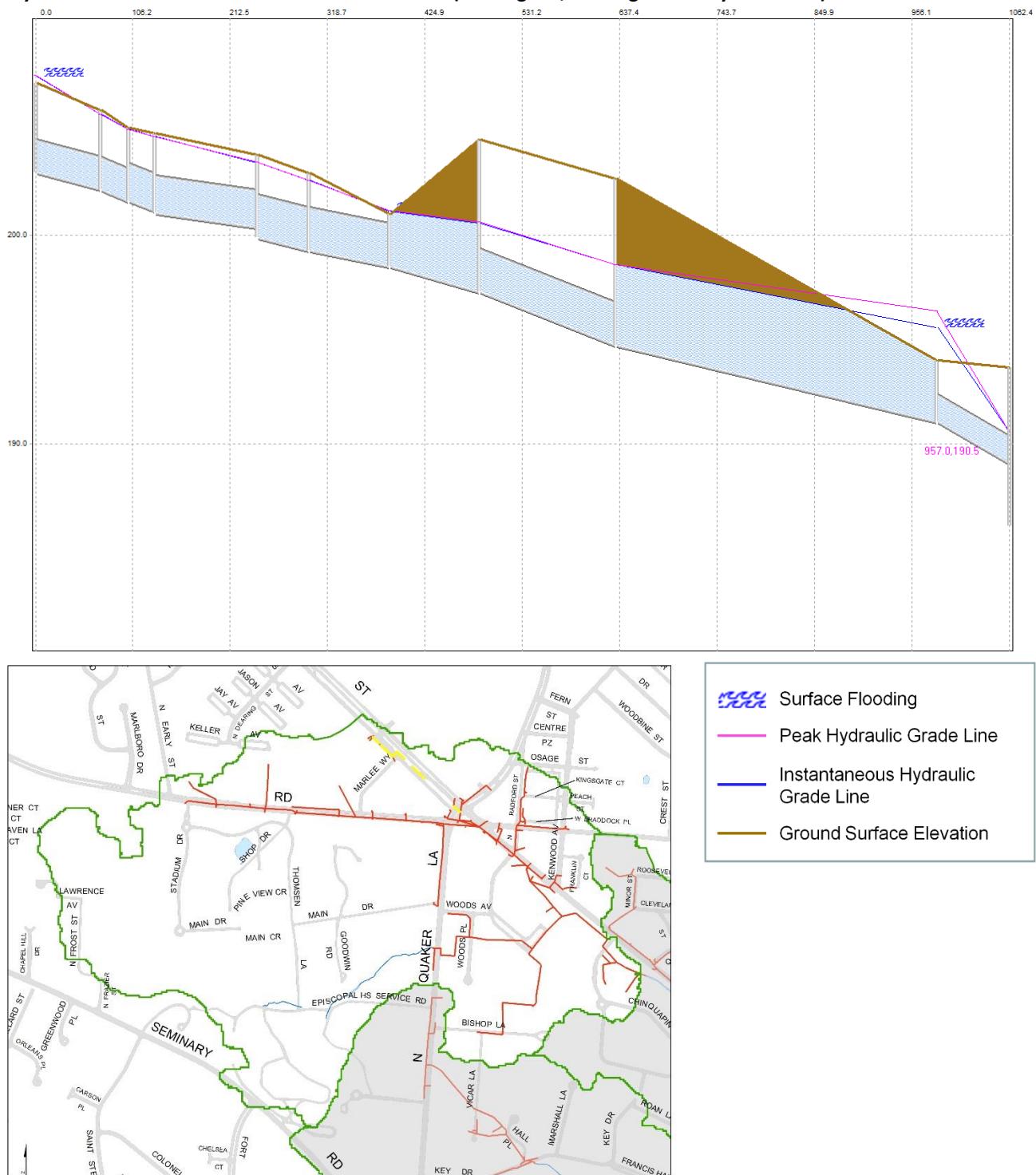


FIGURE 6

Taylor Run Profile 6 from 000135IN to 000050SMH (Existing IDF, Existing Boundary Condition)

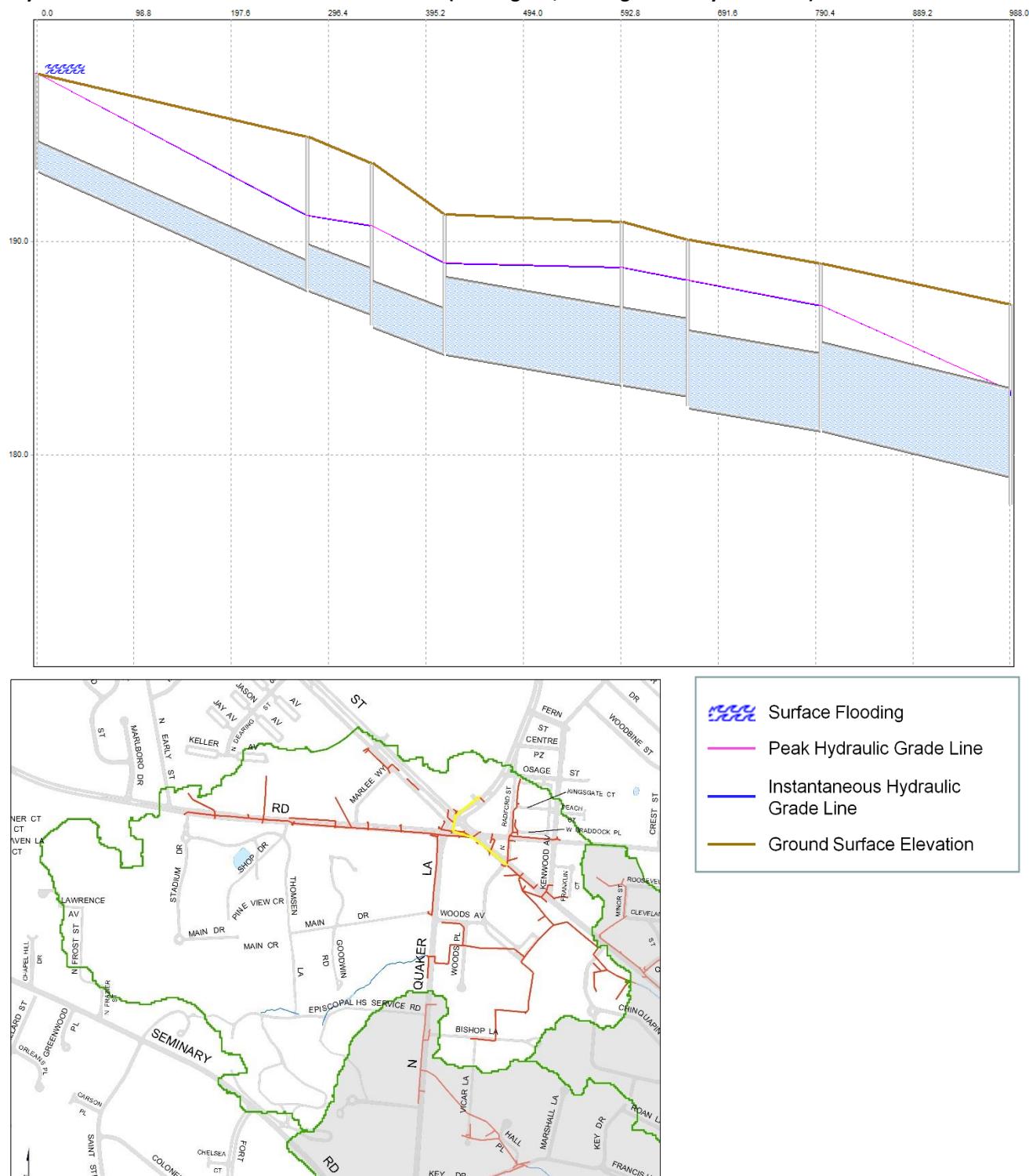


FIGURE 7

Taylor Run Profile 7 from 002547SMH to 004206SMH (Existing IDF, Existing Boundary Condition)

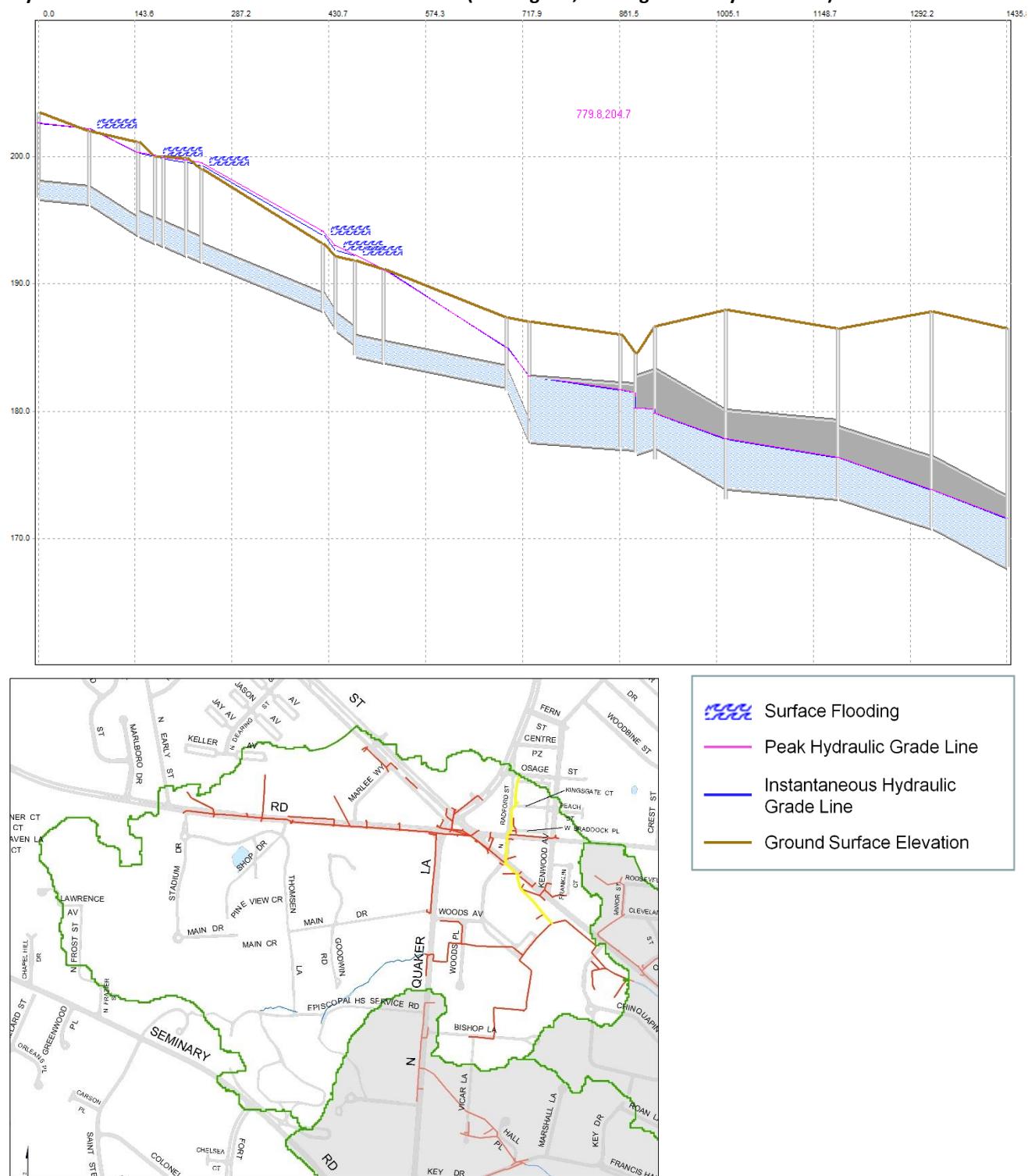


FIGURE 8

Taylor Run Profile 8 from 004206SMH to 000015IO (Existing IDF, Existing Boundary Condition)

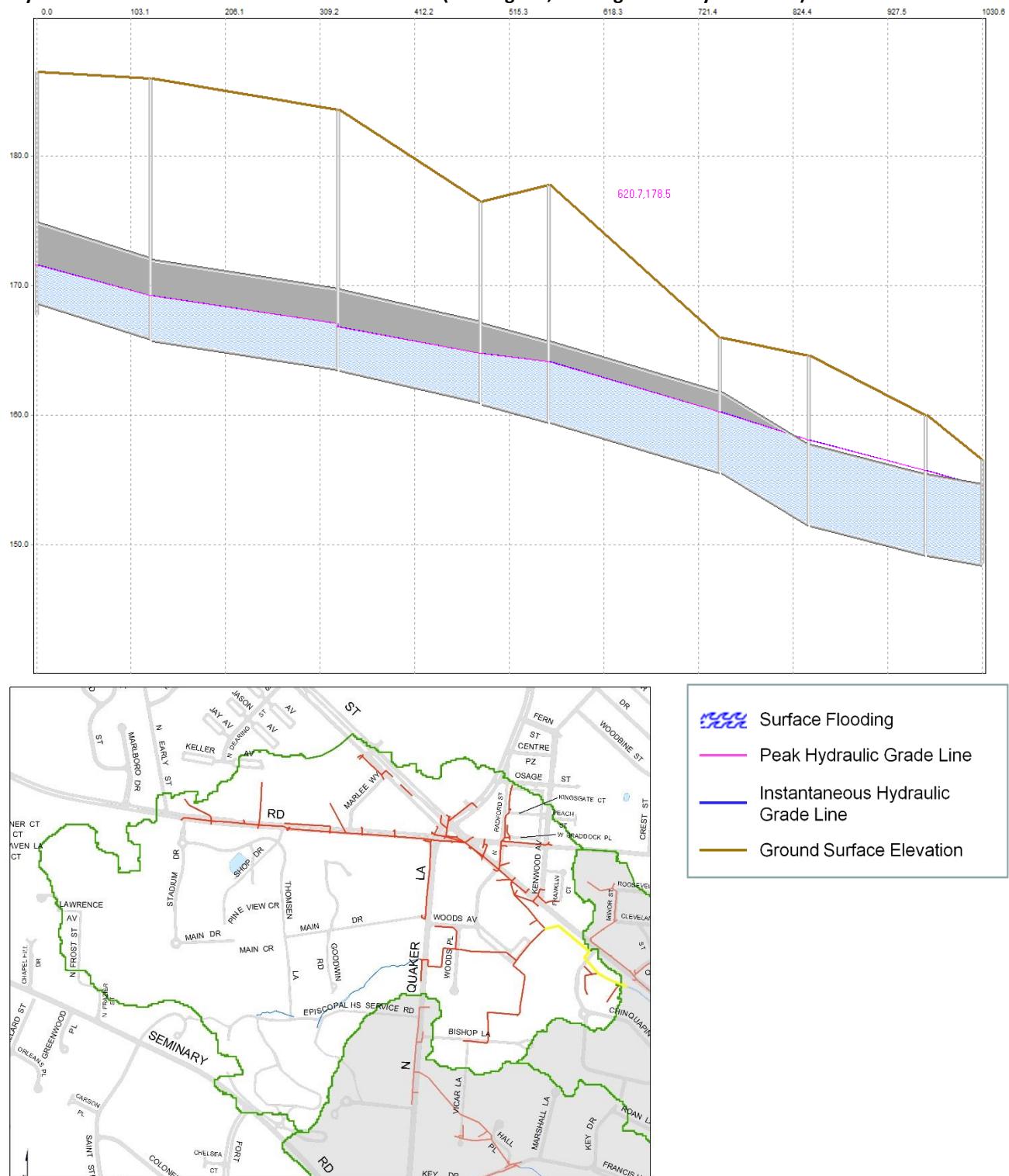


FIGURE 9

Taylor Run Profile 9 from 000814IN to 004206SMH (Existing IDF, Existing Boundary Condition)

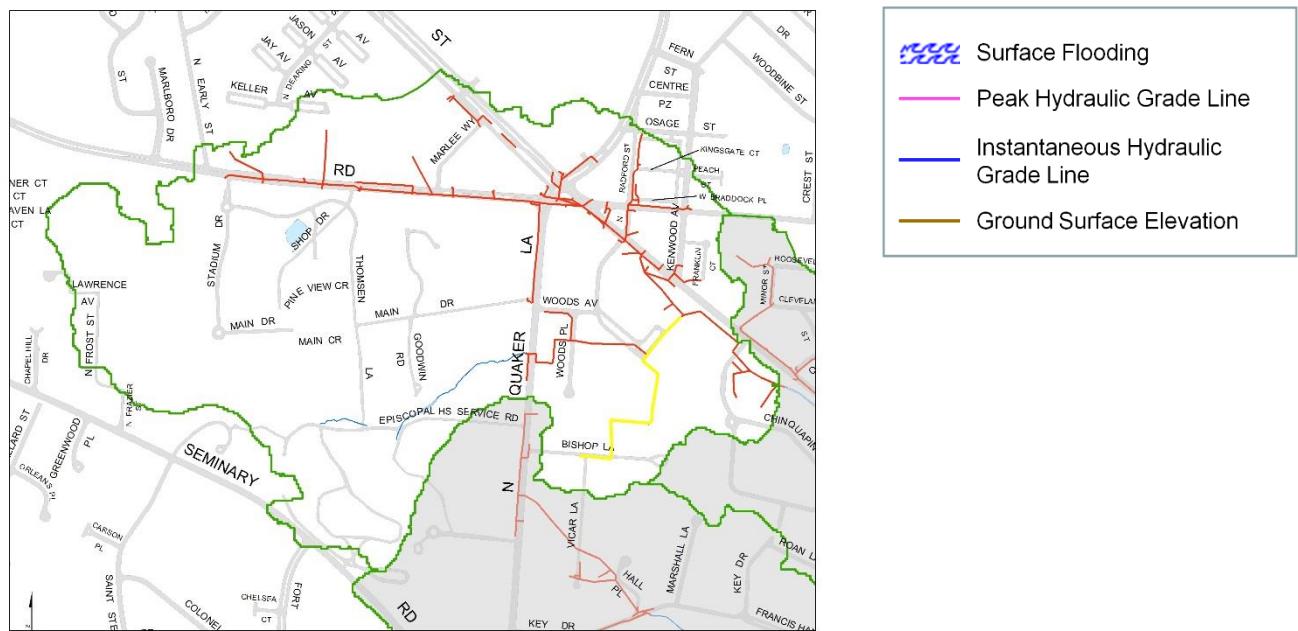
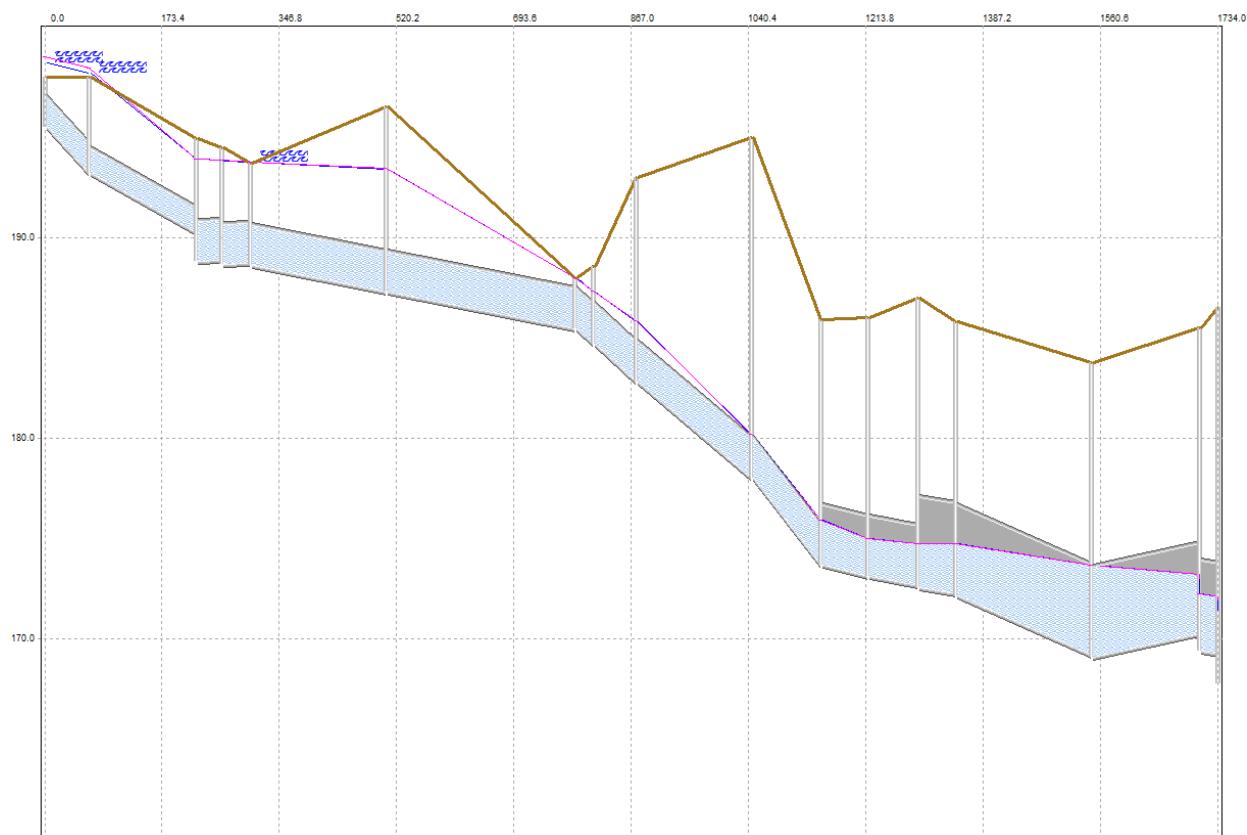


FIGURE 10

**Taylor Run Profile 10 from 000877IN to 004202SMH (Existing IDF, Existing Boundary Condition)**

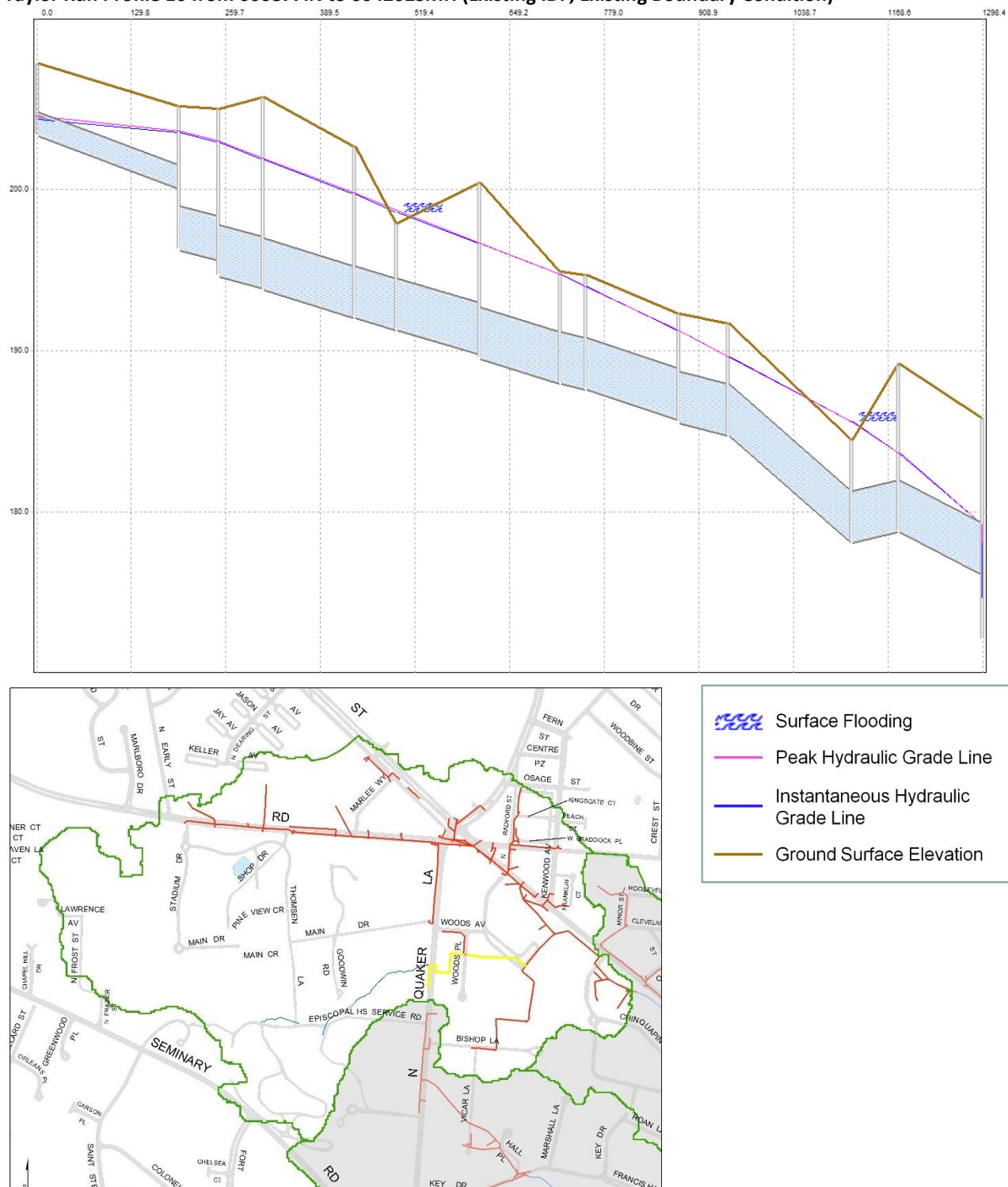


FIGURE 11

**Taylor Run Profile 11 from 000124ND to 000872IN (Existing IDF, Existing Boundary Condition)**

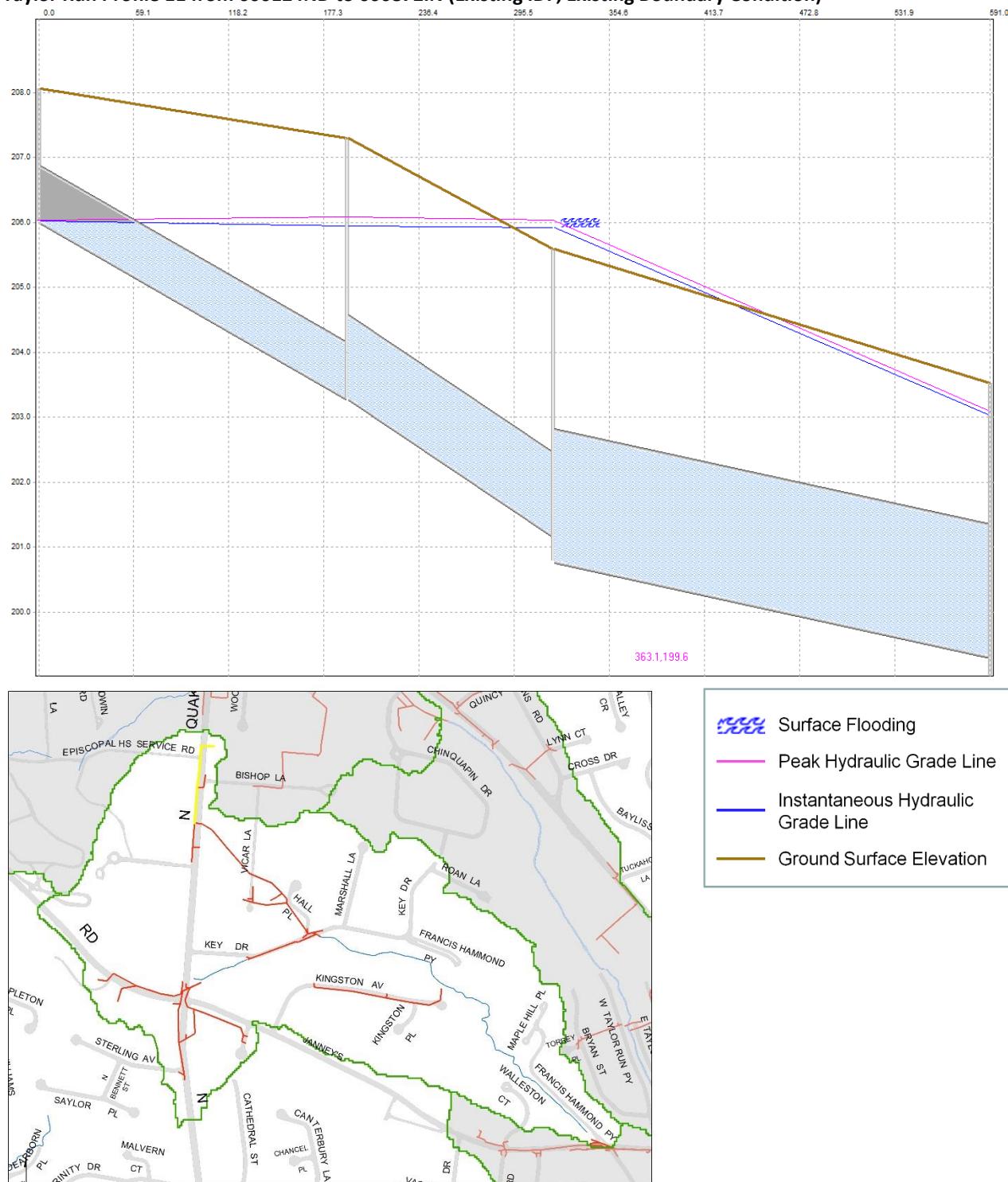


FIGURE 12

**Taylor Run Profile 12 from 000873IN to 000858IN (Existing IDF, Existing Boundary Condition)**

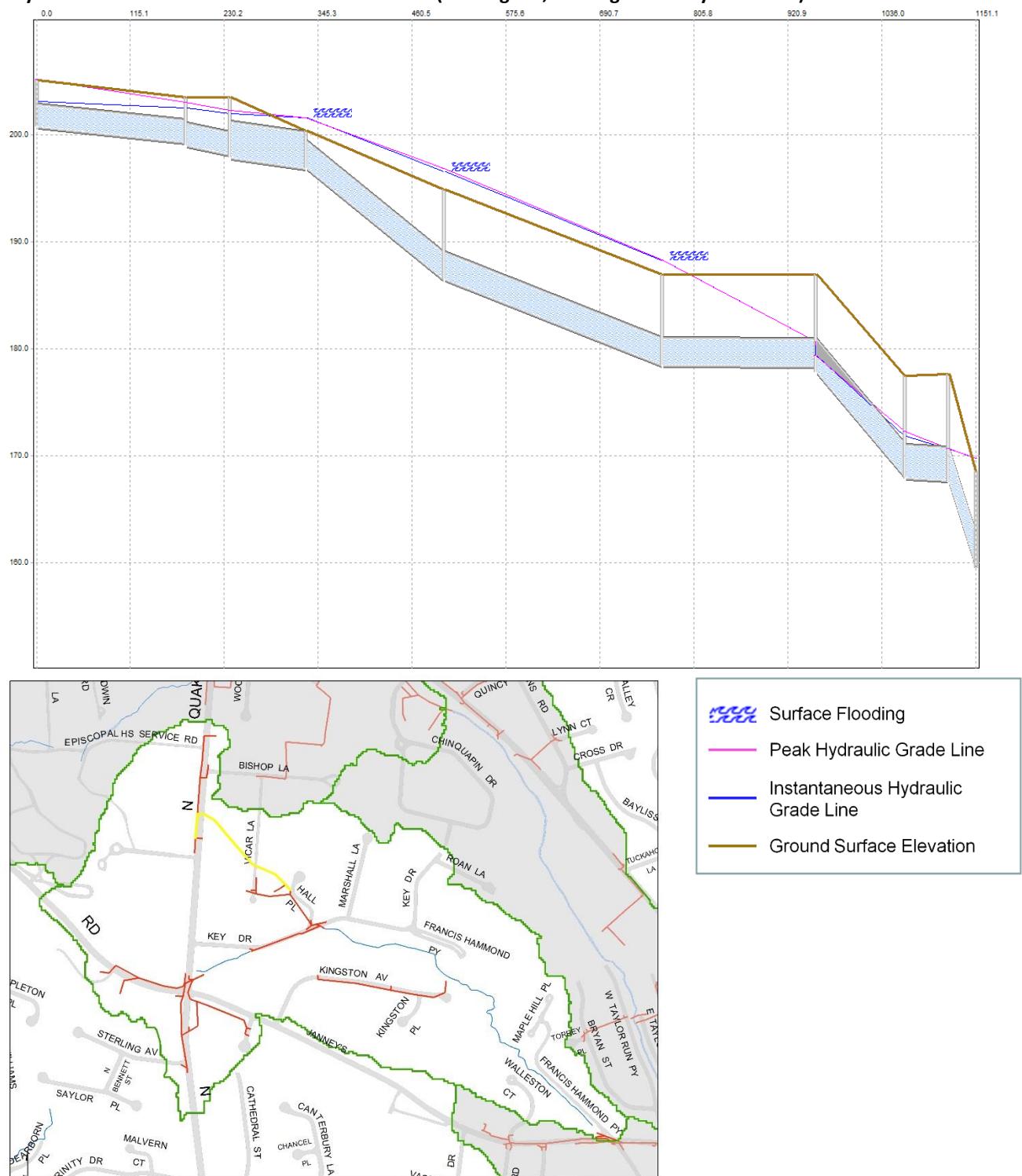


FIGURE 13

**Taylor Run Profile 13 from 000820IN to 000121ND (Existing IDF, Existing Boundary Condition)**

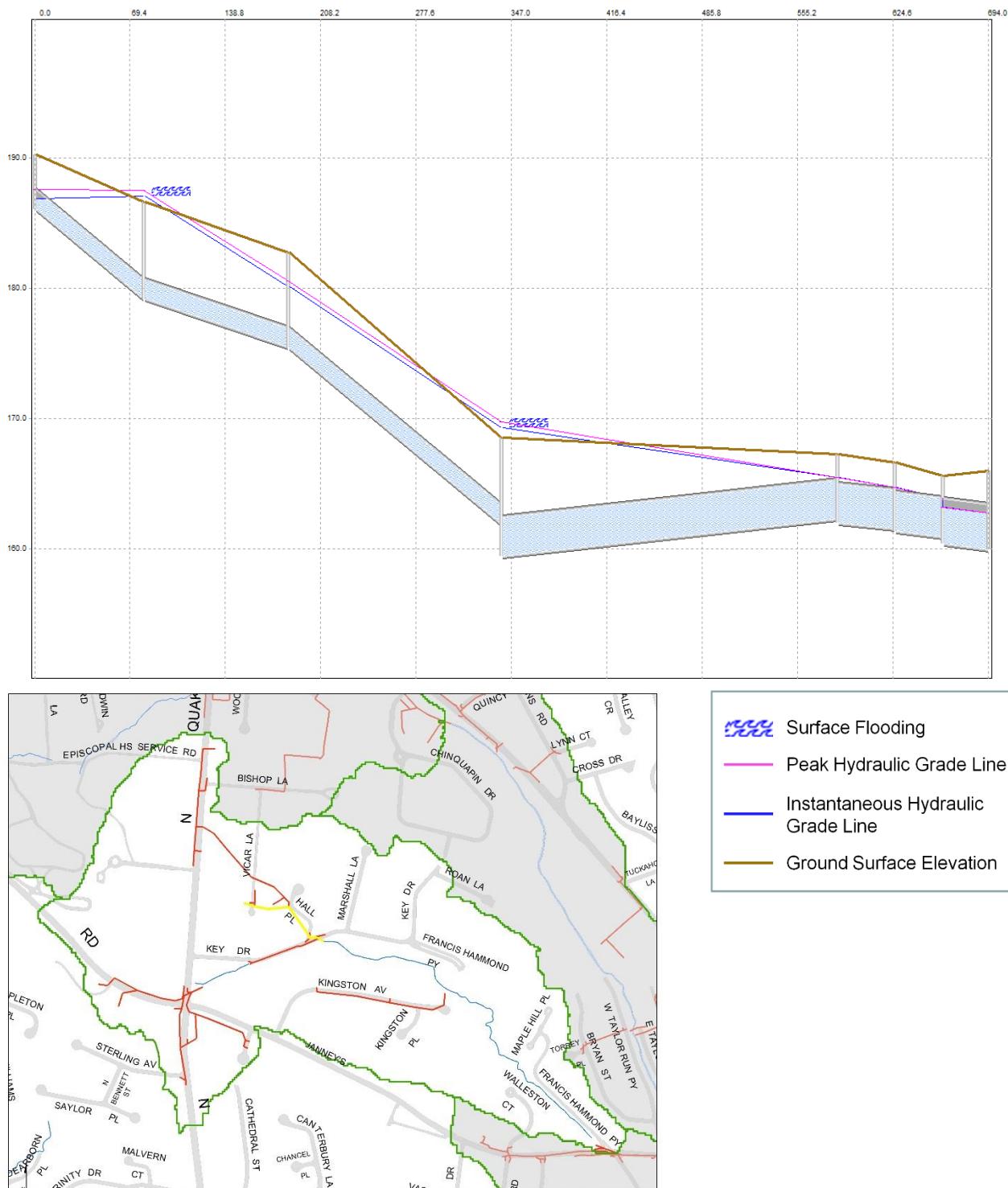


FIGURE 14

**Taylor Run Profile 14 from 000883IN to 000310SMH (Existing IDF, Existing Boundary Condition)**

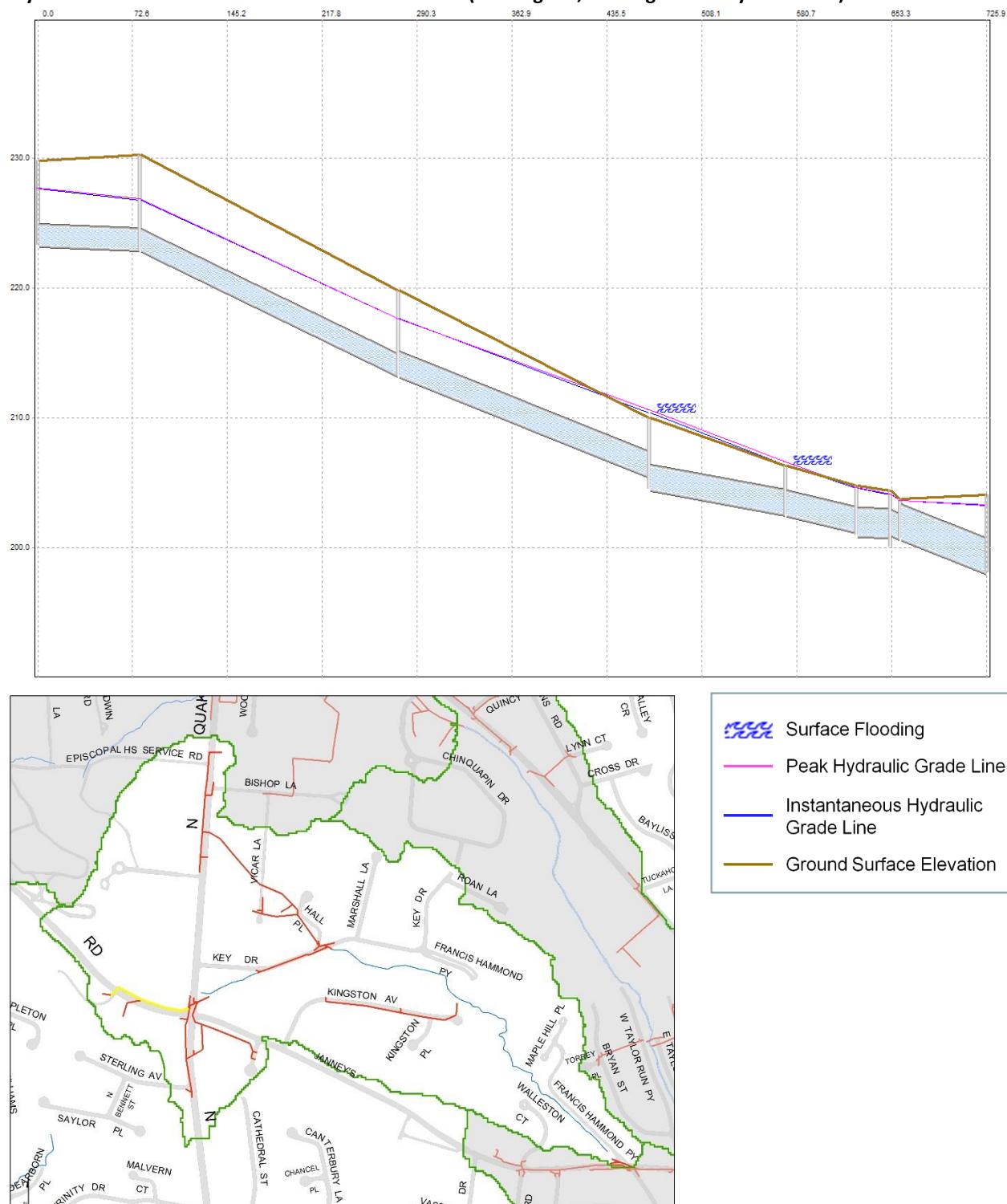


FIGURE 15

**Taylor Run Profile 15 from 001293IN to 000313SMH (Existing IDF, Existing Boundary Condition)**

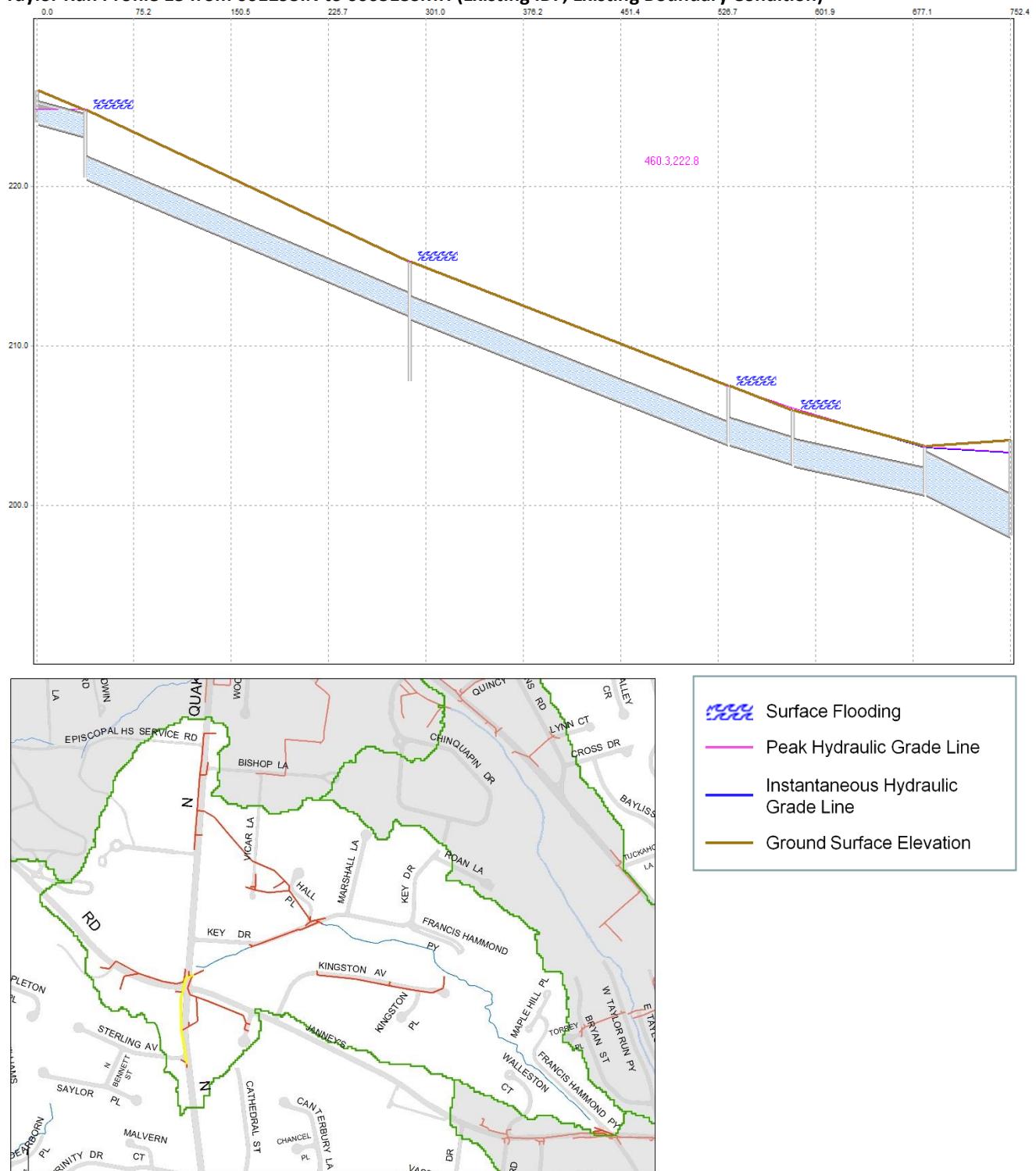


FIGURE 16

**Taylor Run Profile 16 from 009916IN to 000313SMH (Existing IDF, Existing Boundary Condition)**

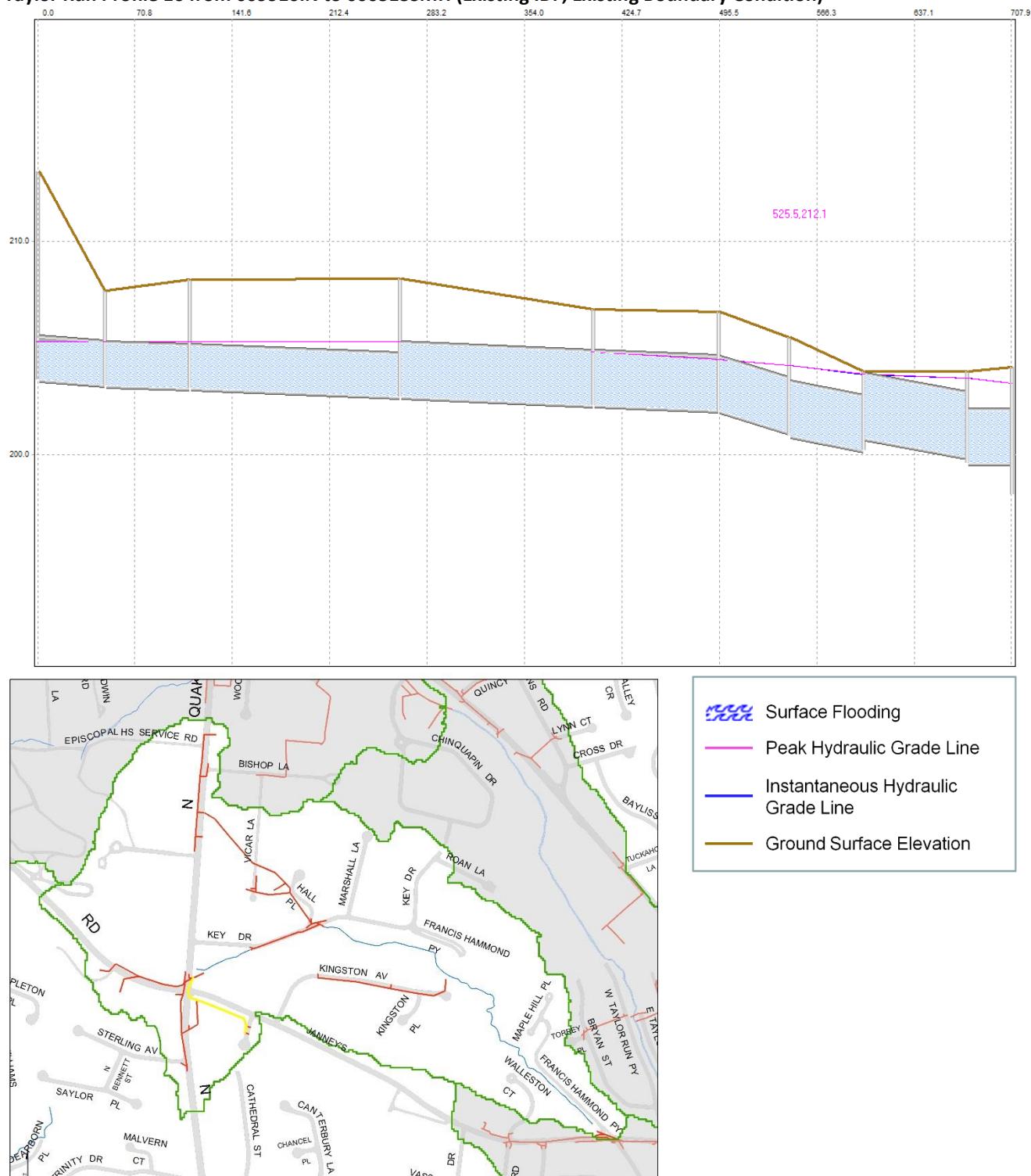


FIGURE 17

**Taylor Run Profile 17 from 000313SMH to 000121ND (Existing IDF, Existing Boundary Condition)**

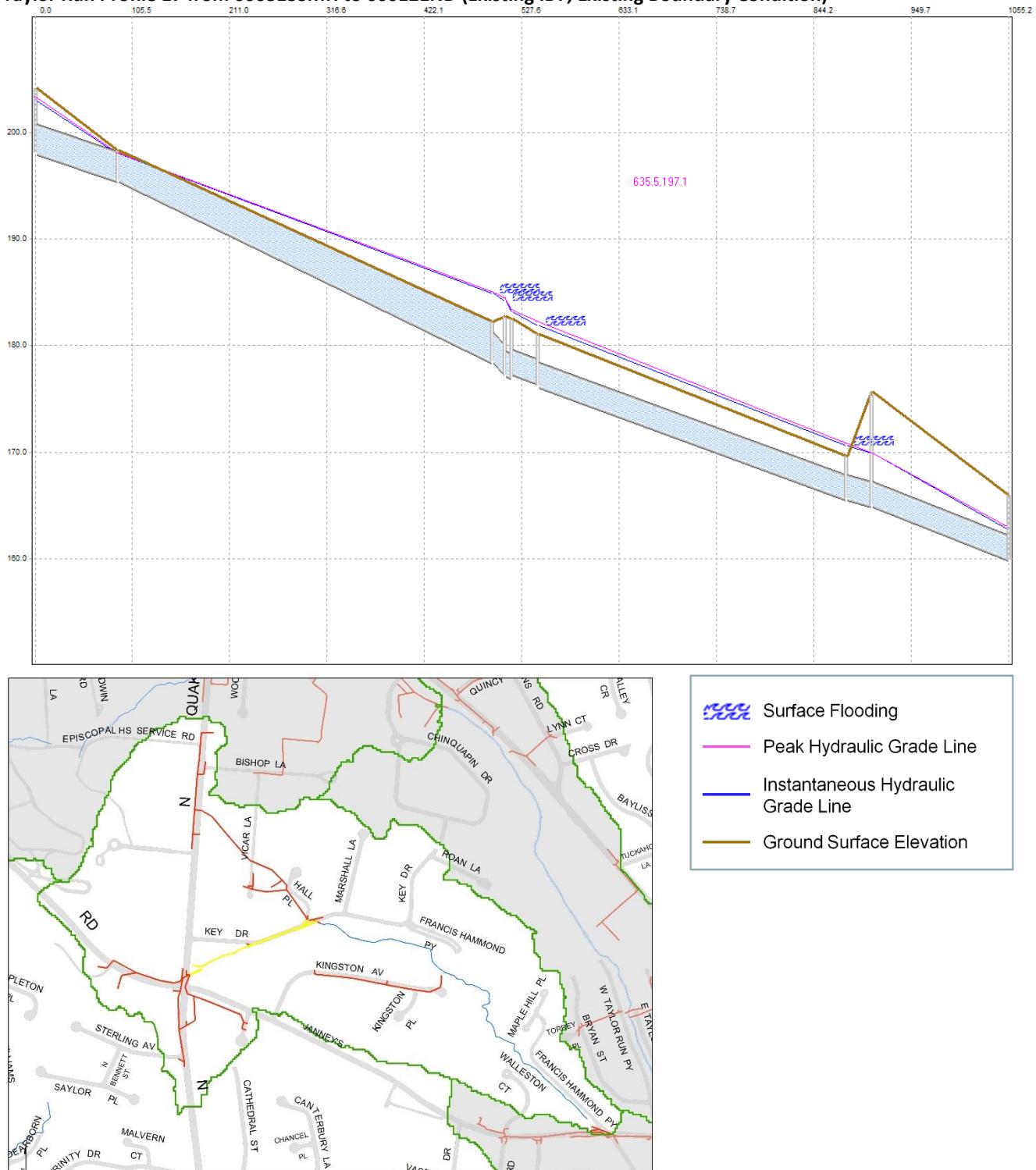


FIGURE 18

**Taylor Run Profile 18 from 000121ND to 000291SMH (Existing IDF, Existing Boundary Condition)**

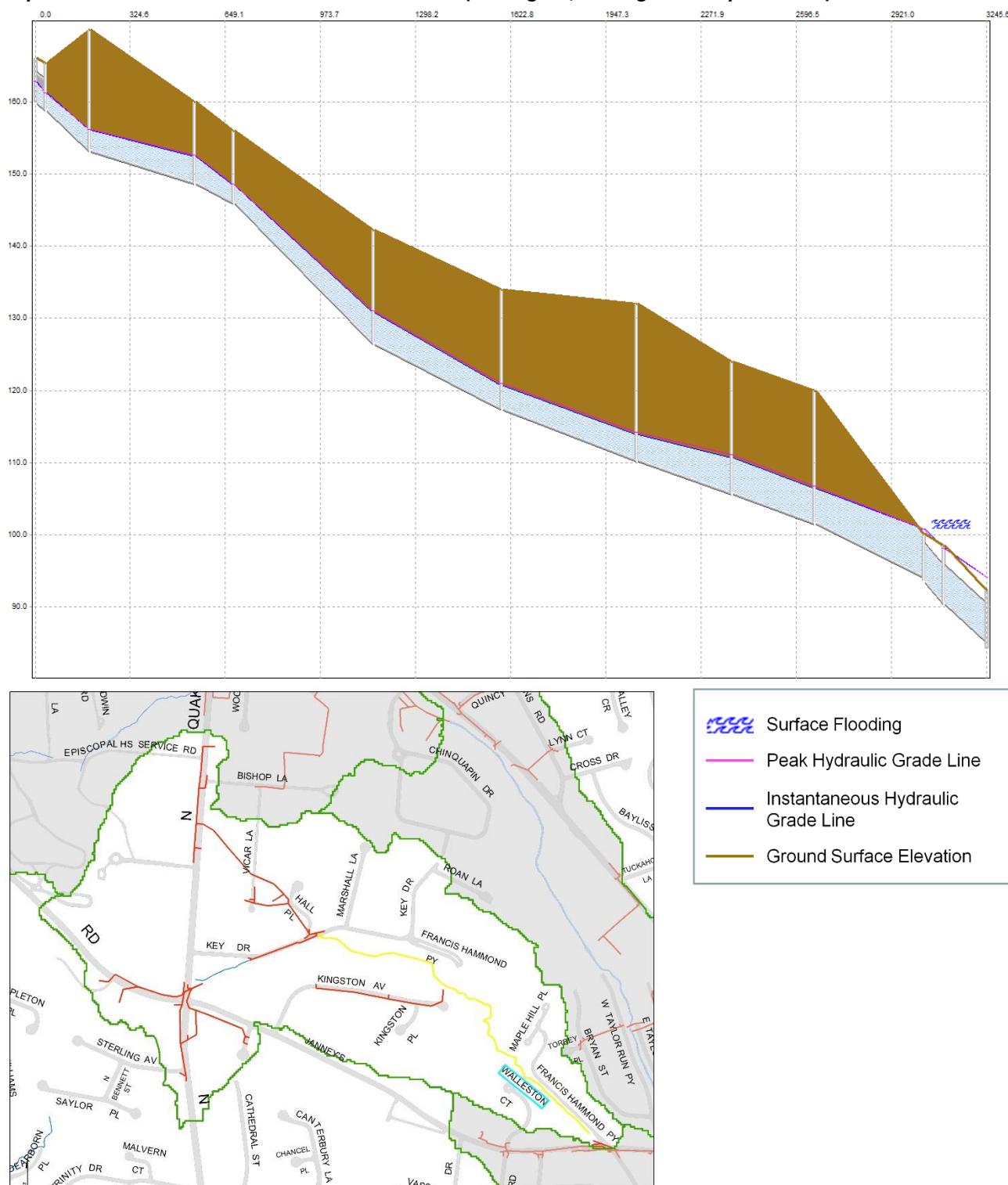


FIGURE 19

**Taylor Run Profile 19 from 000862IN to 000003IO (Existing IDF, Existing Boundary Condition)**

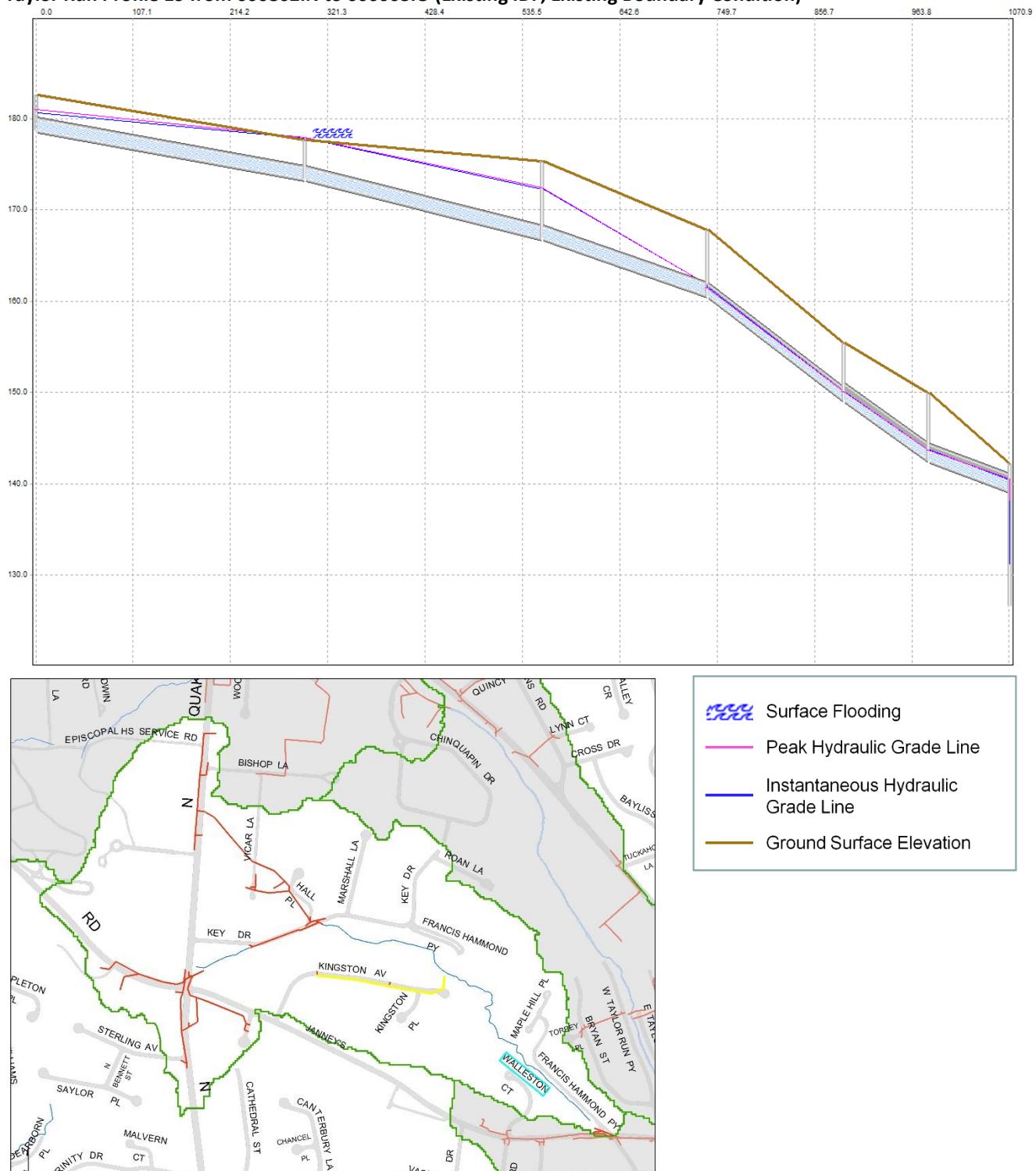


FIGURE 20

**Taylor Run Profile 20 from 005532IN to 000022SMH (Existing IDF, Existing Boundary Condition)**

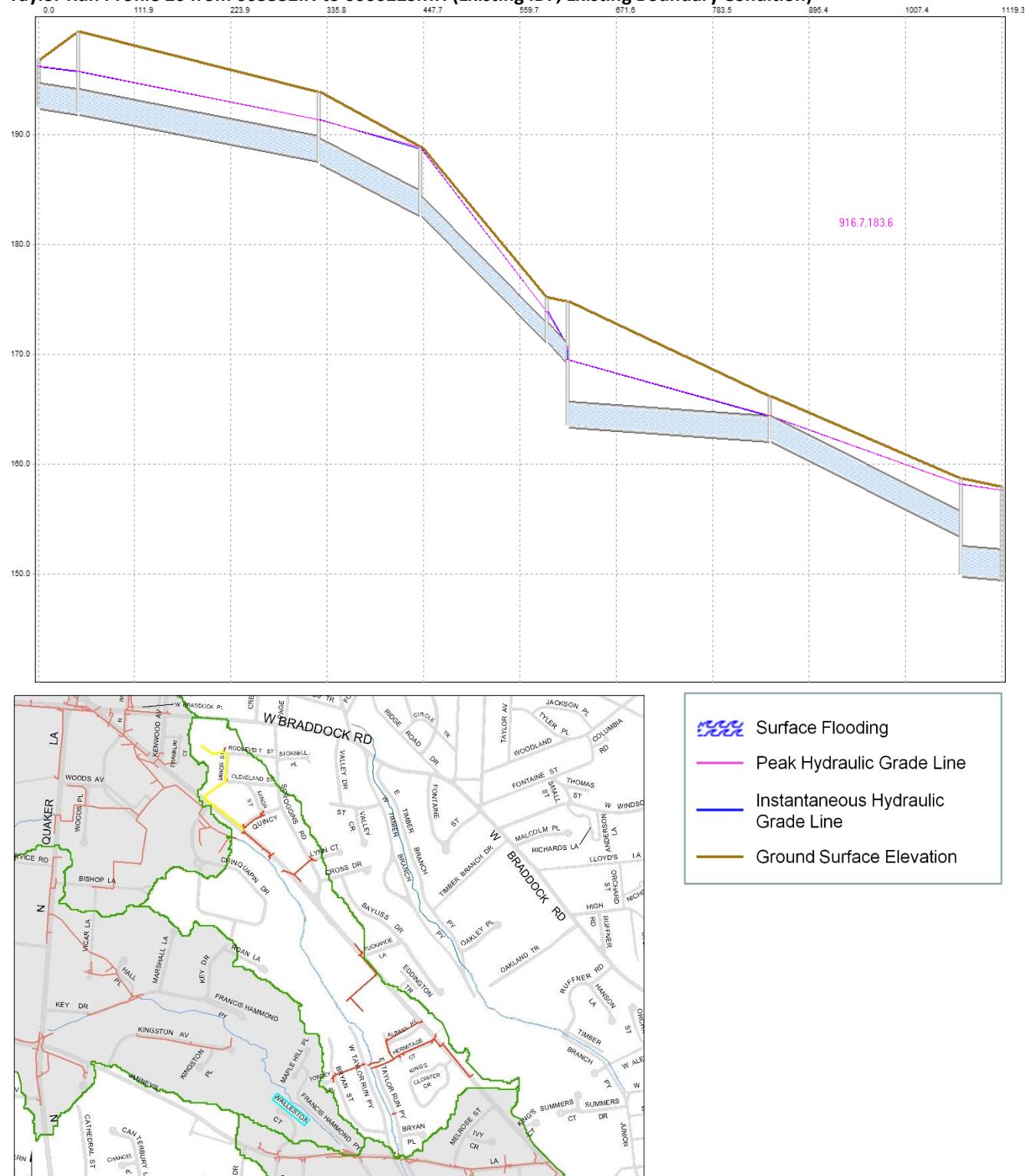


FIGURE 21

**Taylor Run Profile 21 from 000024SMH to 000016IO (Existing IDF, Existing Boundary Condition)**

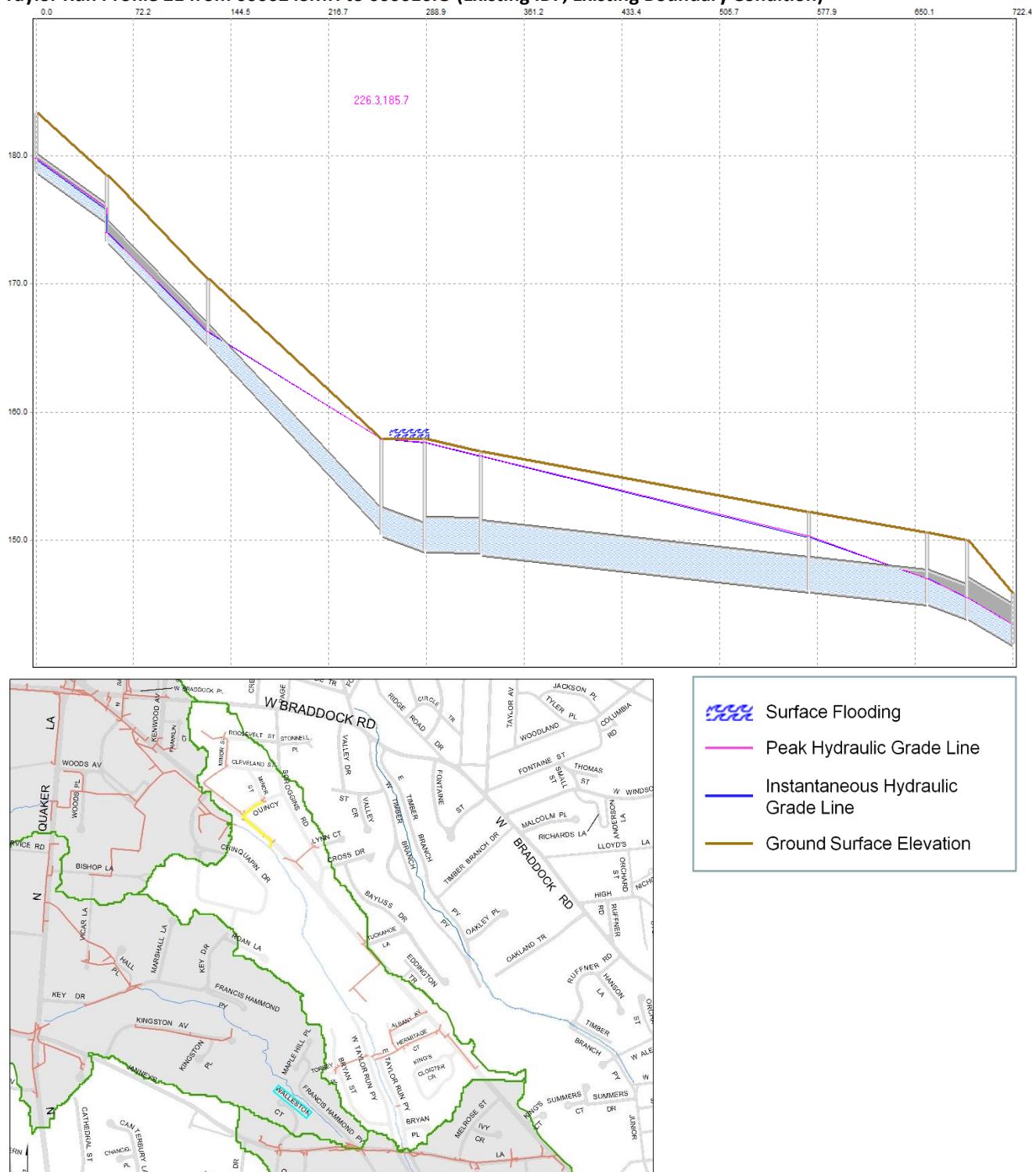


FIGURE 22

**Taylor Run Profile 22 from 000756ND to 000530IO (Existing IDF, Existing Boundary Condition)**

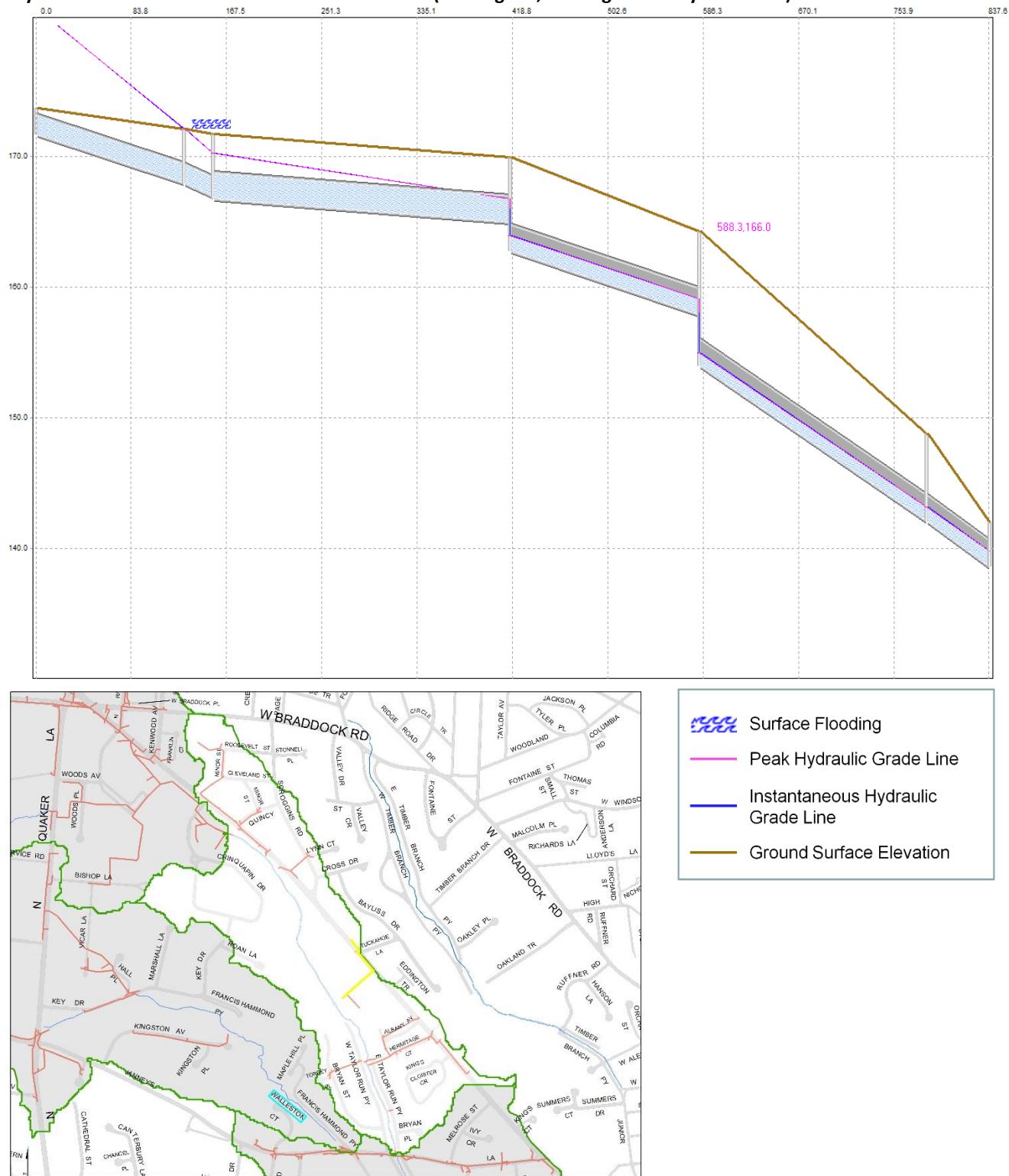


FIGURE 23

**Taylor Run Profile 23 from 000748ND to 005770IN (Existing IDF, Existing Boundary Condition)**

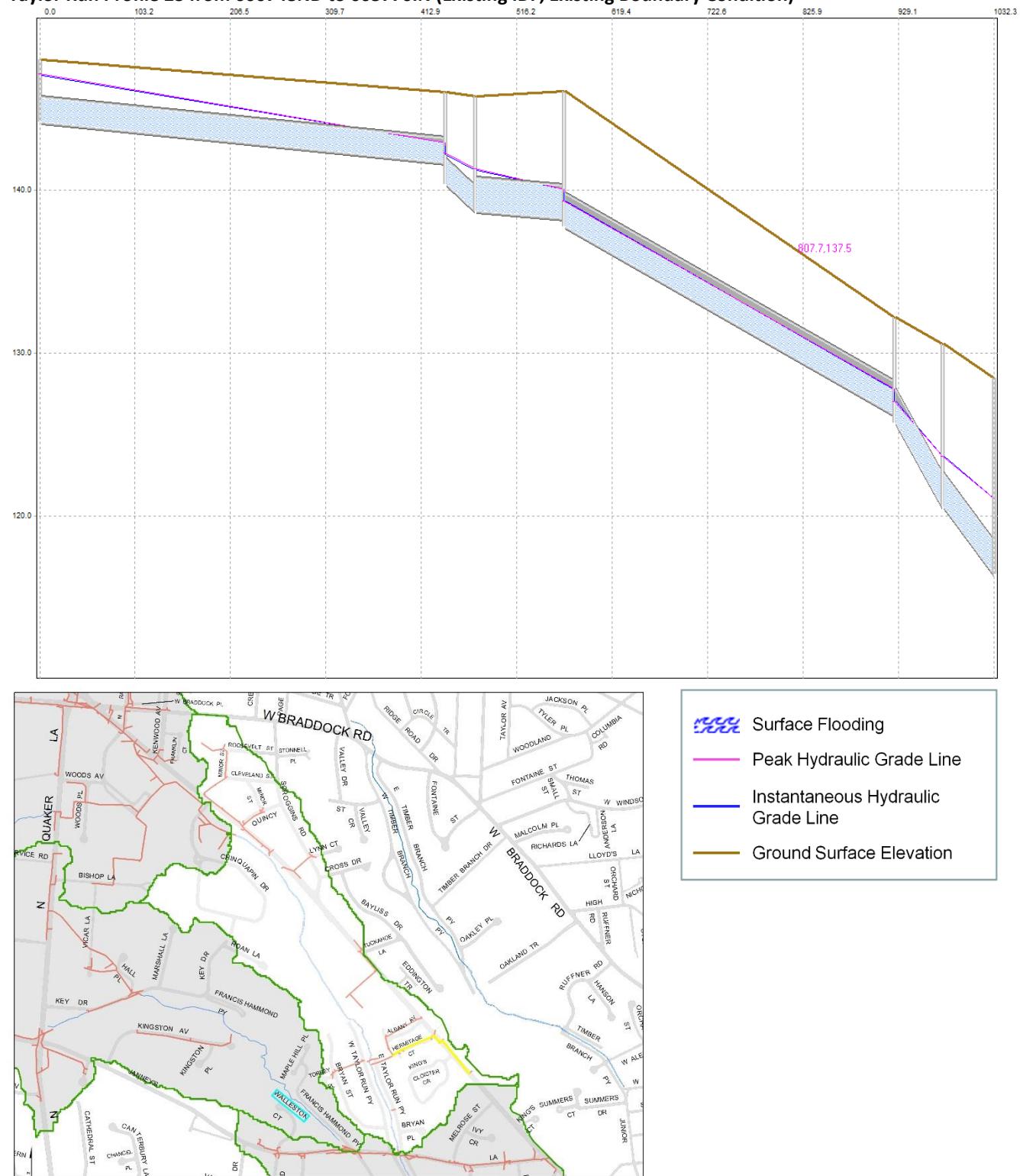


FIGURE 24

**Taylor Run Profile 24 from 005745IN to 000050IO (Existing IDF, Existing Boundary Condition)**

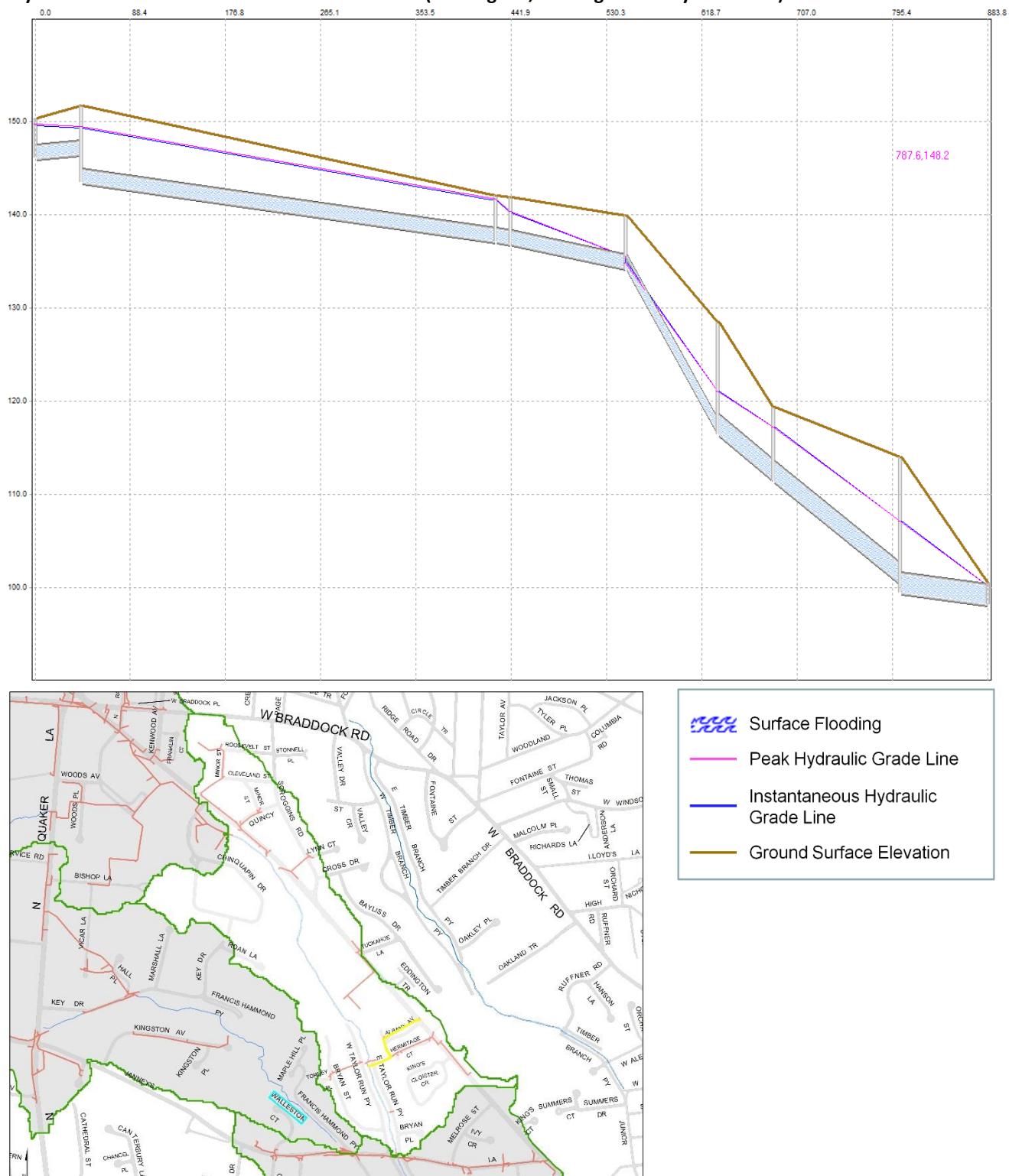


FIGURE 25

**Taylor Run Profile 25 from 000290SMH to 000062IO (Existing IDF, Existing Boundary Condition)**

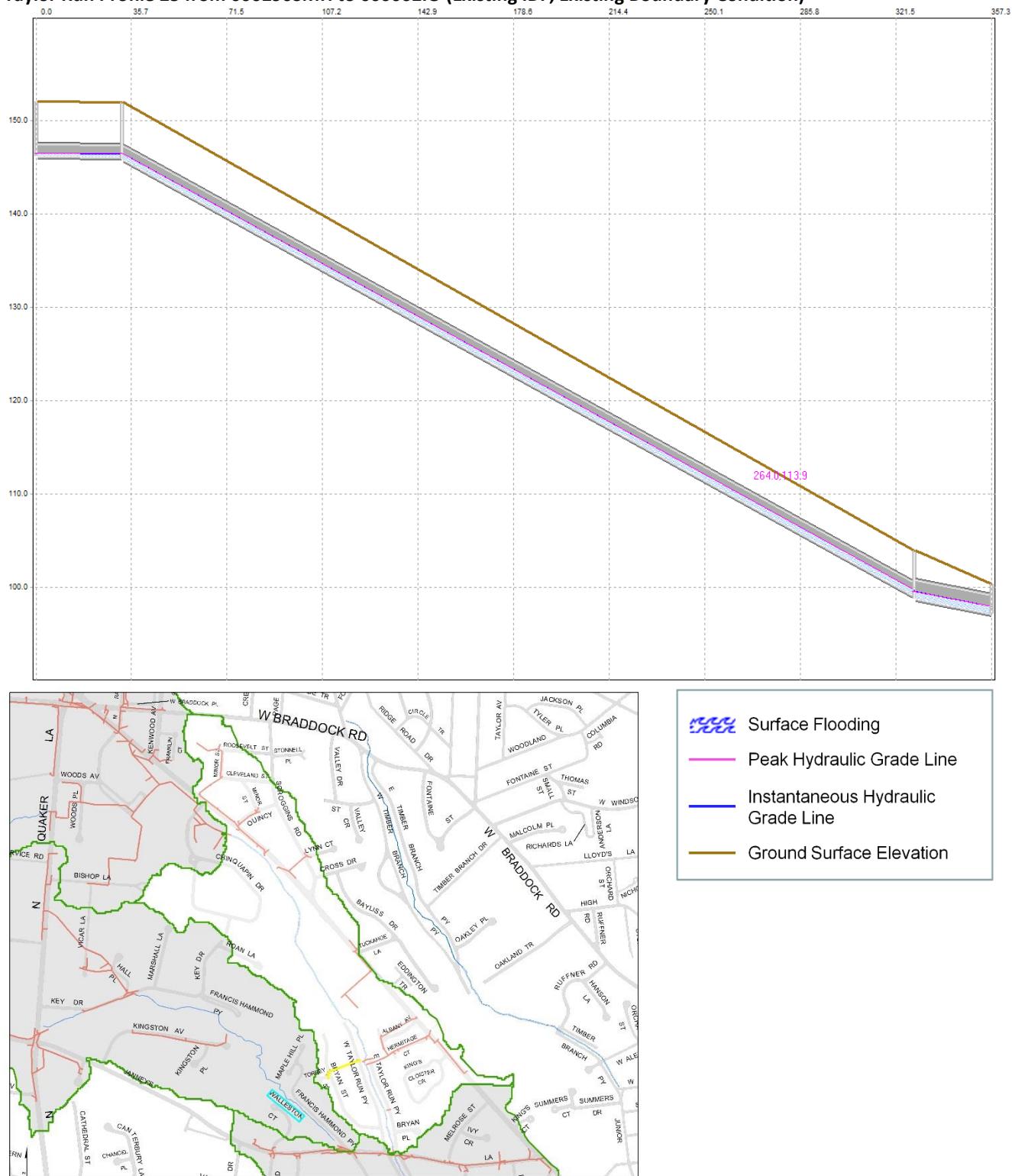


FIGURE 26

**Taylor Run Profile 26 from 001234IN to 000297SMH (Existing IDF, Existing Boundary Condition)**

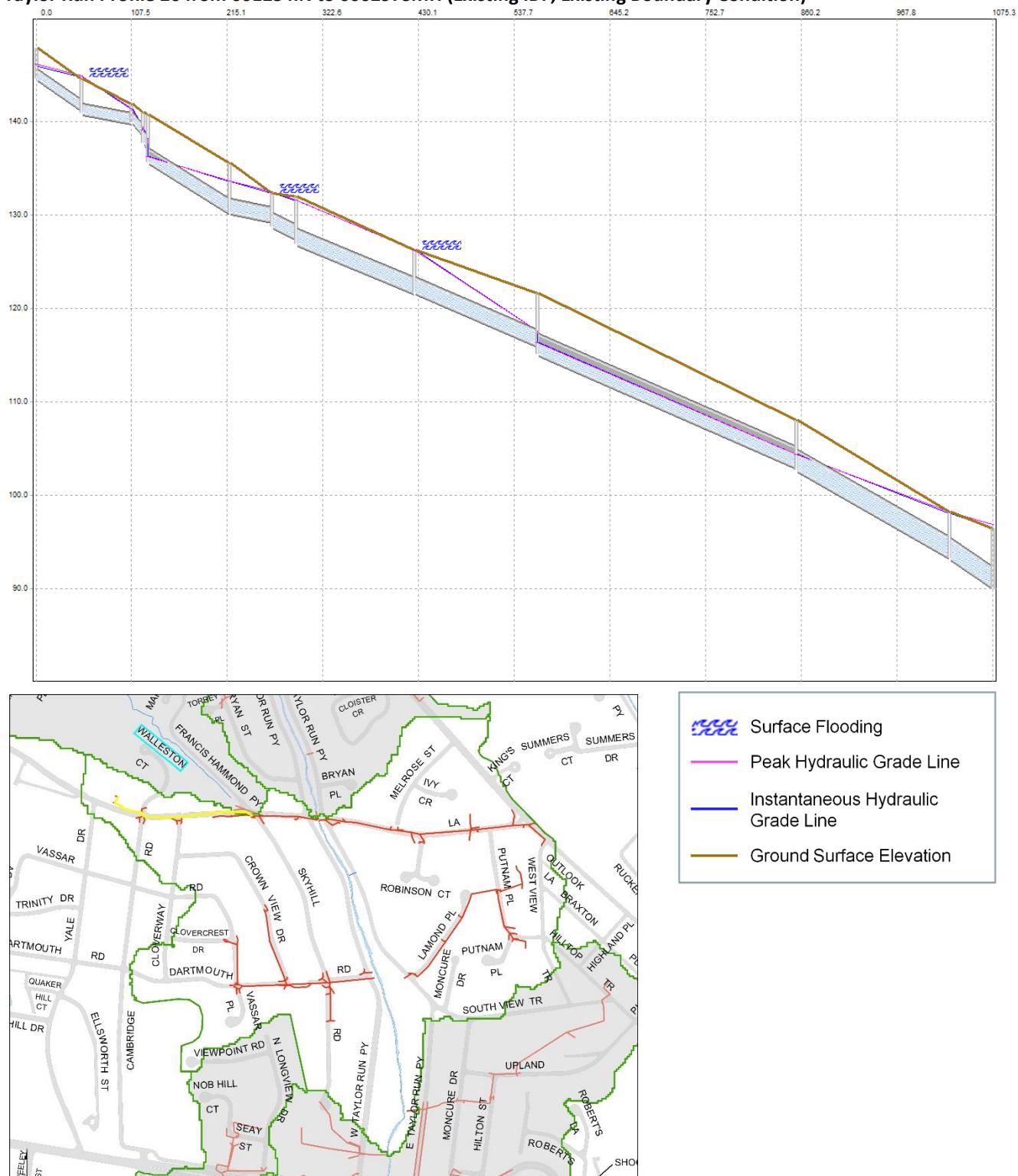


FIGURE 27

**Taylor Run Profile 27 from 003498SMH to 000056IO (Existing IDF, Existing Boundary Condition)**

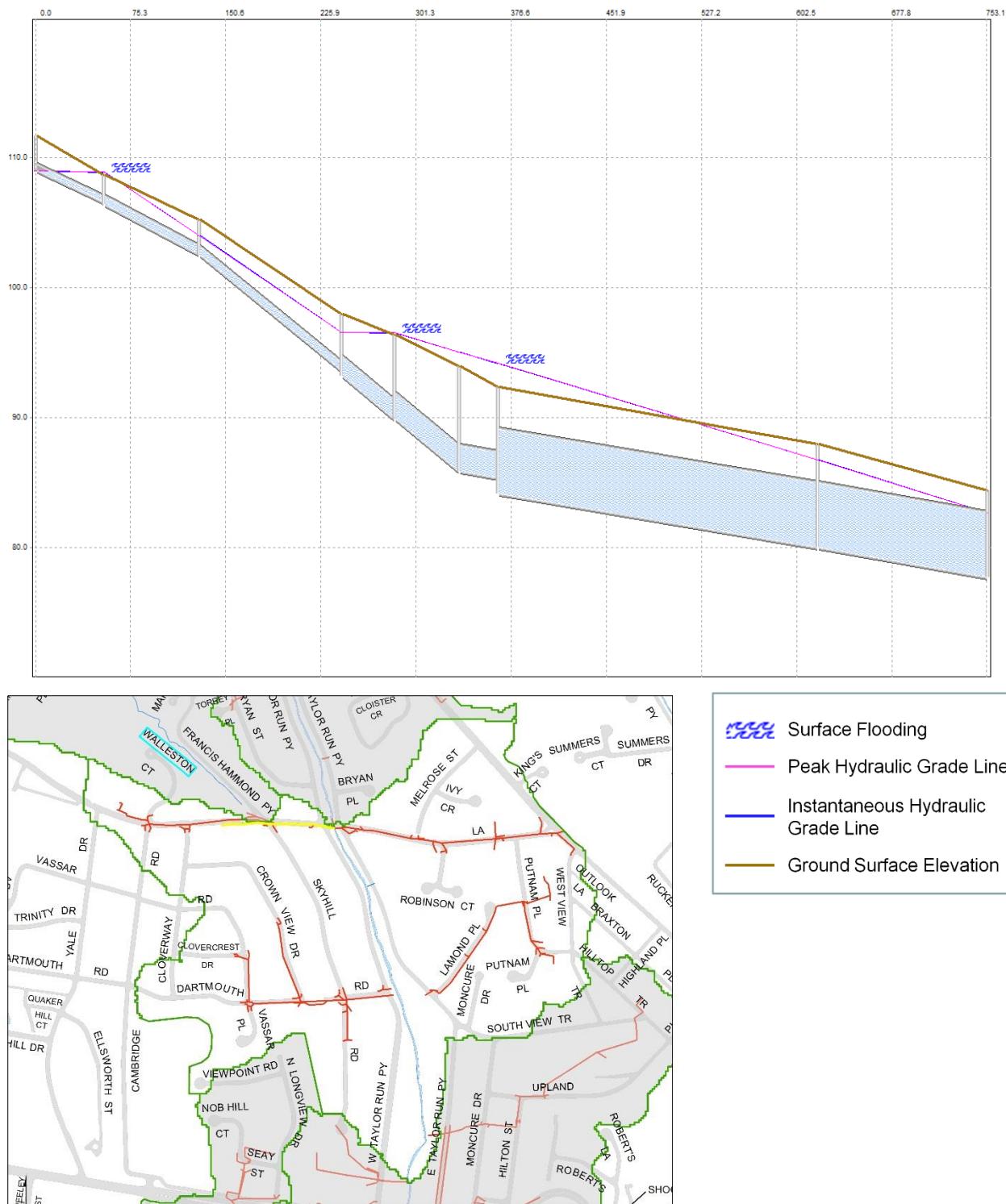


FIGURE 28

**Taylor Run Profile 28 from 005777IN to 000055IO (Existing IDF, Existing Boundary Condition)**

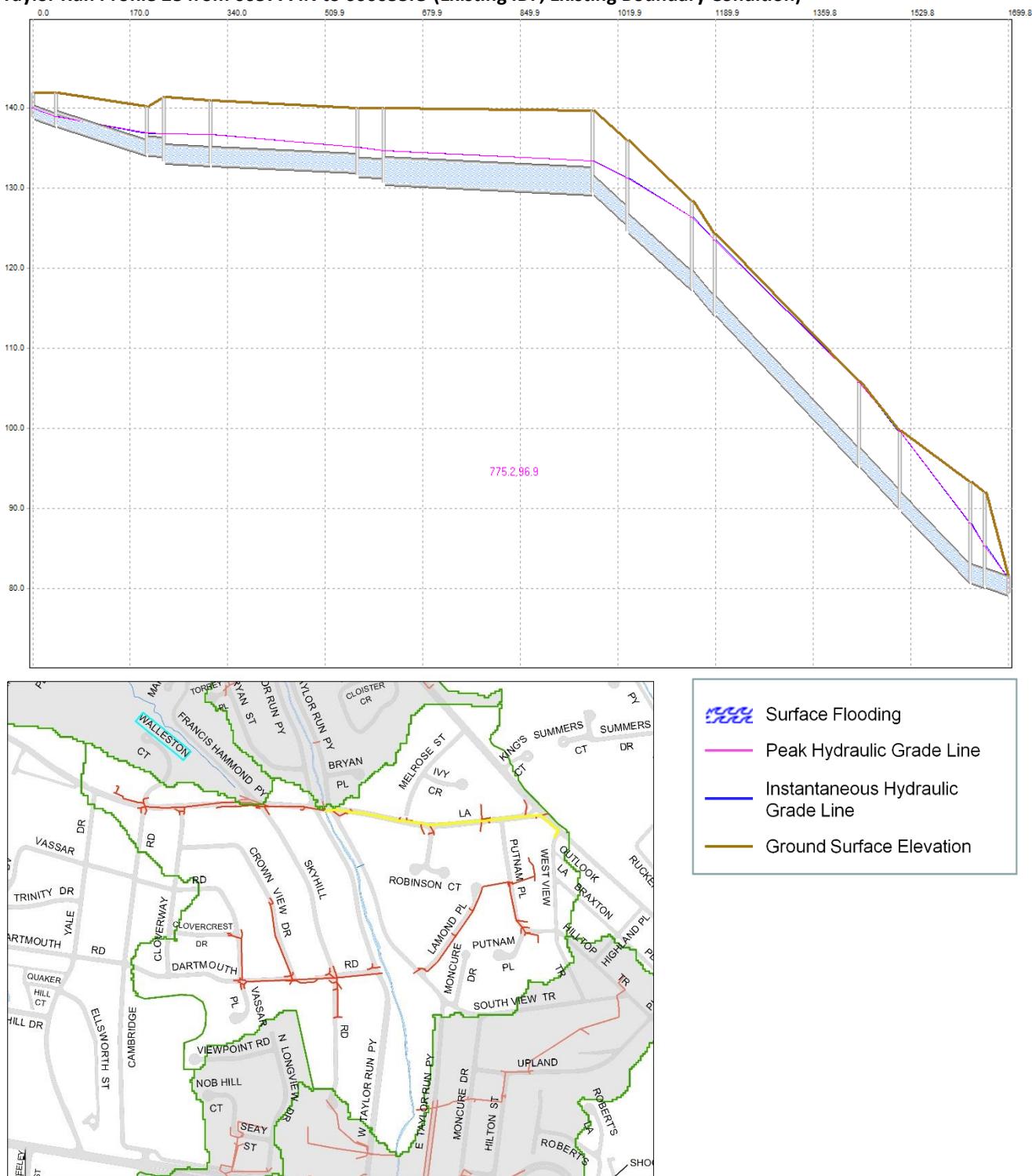


FIGURE 29

**Taylor Run Profile 29 from 000490IN to 000206SMH (Existing IDF, Existing Boundary Condition)**

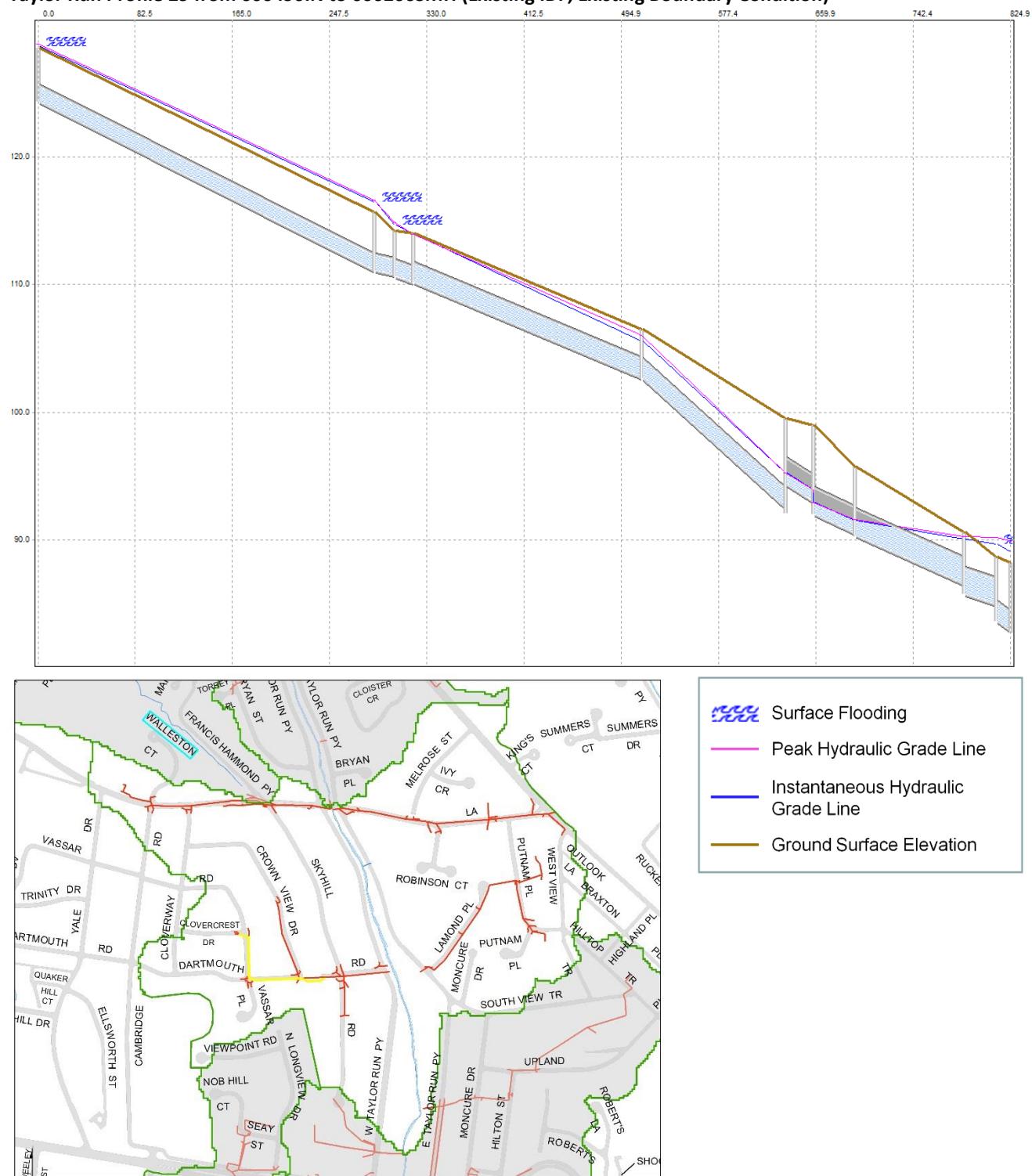


FIGURE 30

## Taylor Run Profile 30 from 000804IN to 000208SMH (Existing IDF, Existing Boundary Condition)

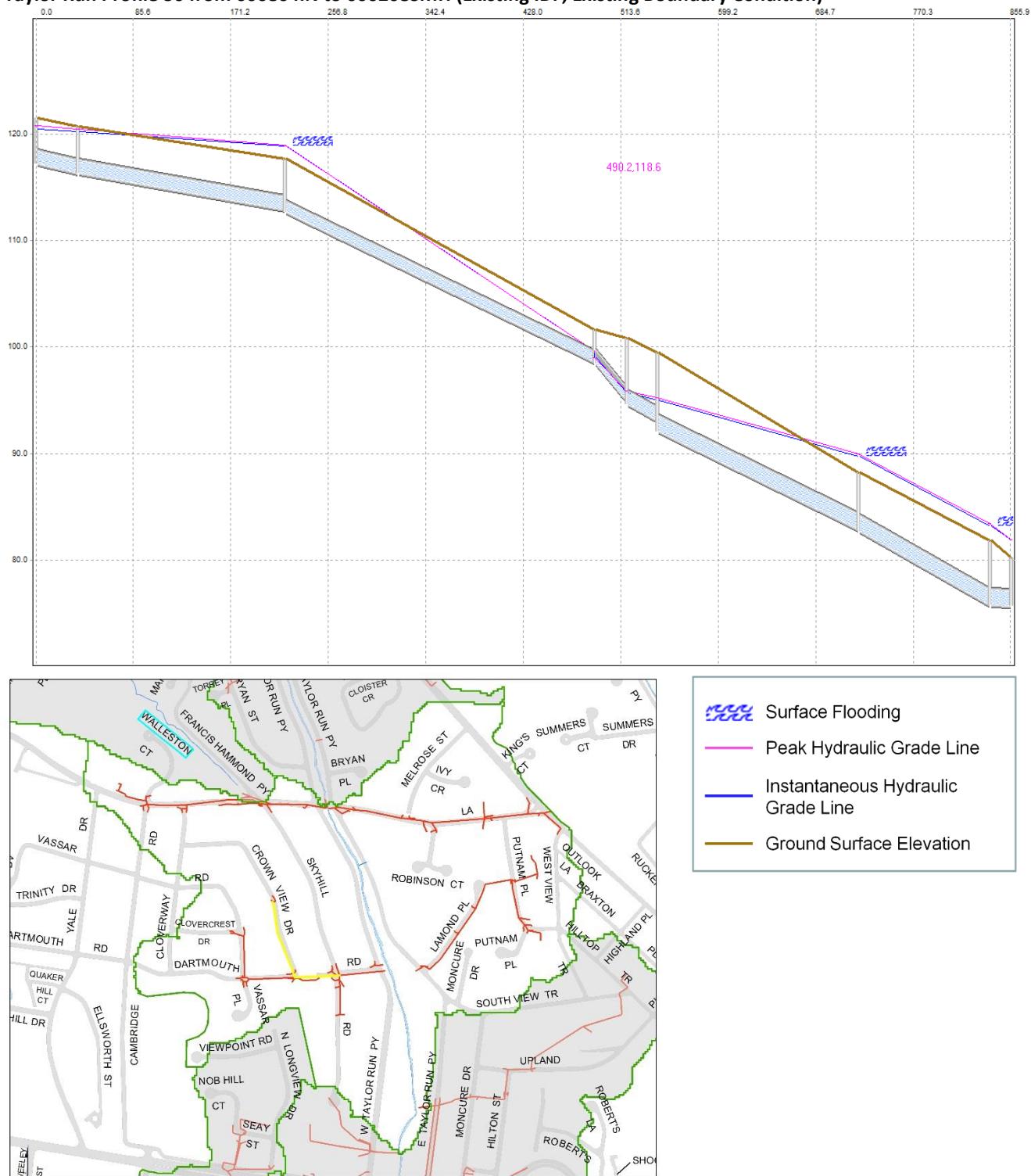


FIGURE 31

**Taylor Run Profile 31 from 000518IN to 000041IO (Existing IDF, Existing Boundary Condition)**

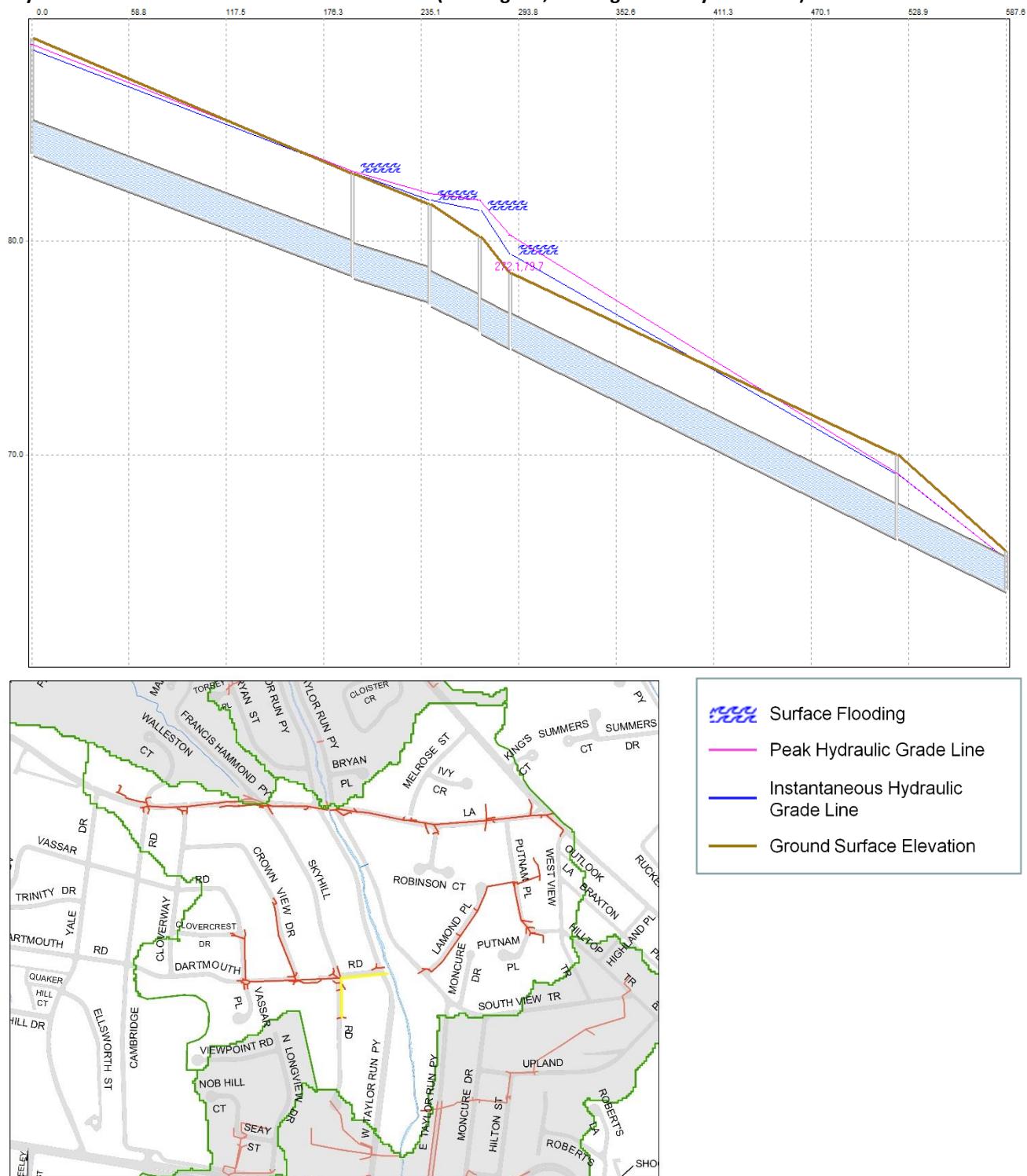


FIGURE 32

**Taylor Run Profile 32 from 000740IN to 000272SMH (Existing IDF, Existing Boundary Condition)**

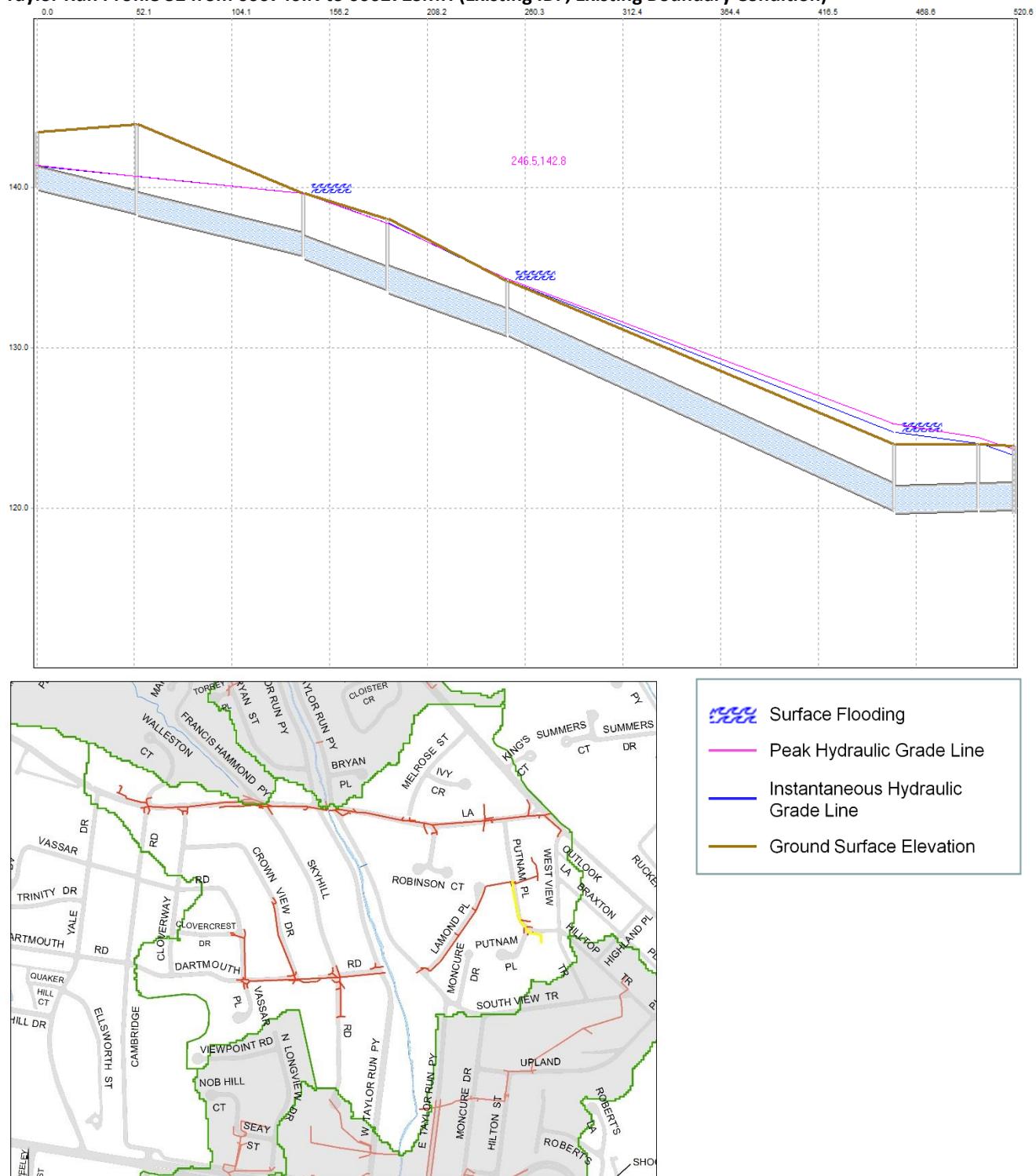


FIGURE 33

**Taylor Run Profile 33 from 000743IN to 000044IO (Existing IDF, Existing Boundary Condition)**

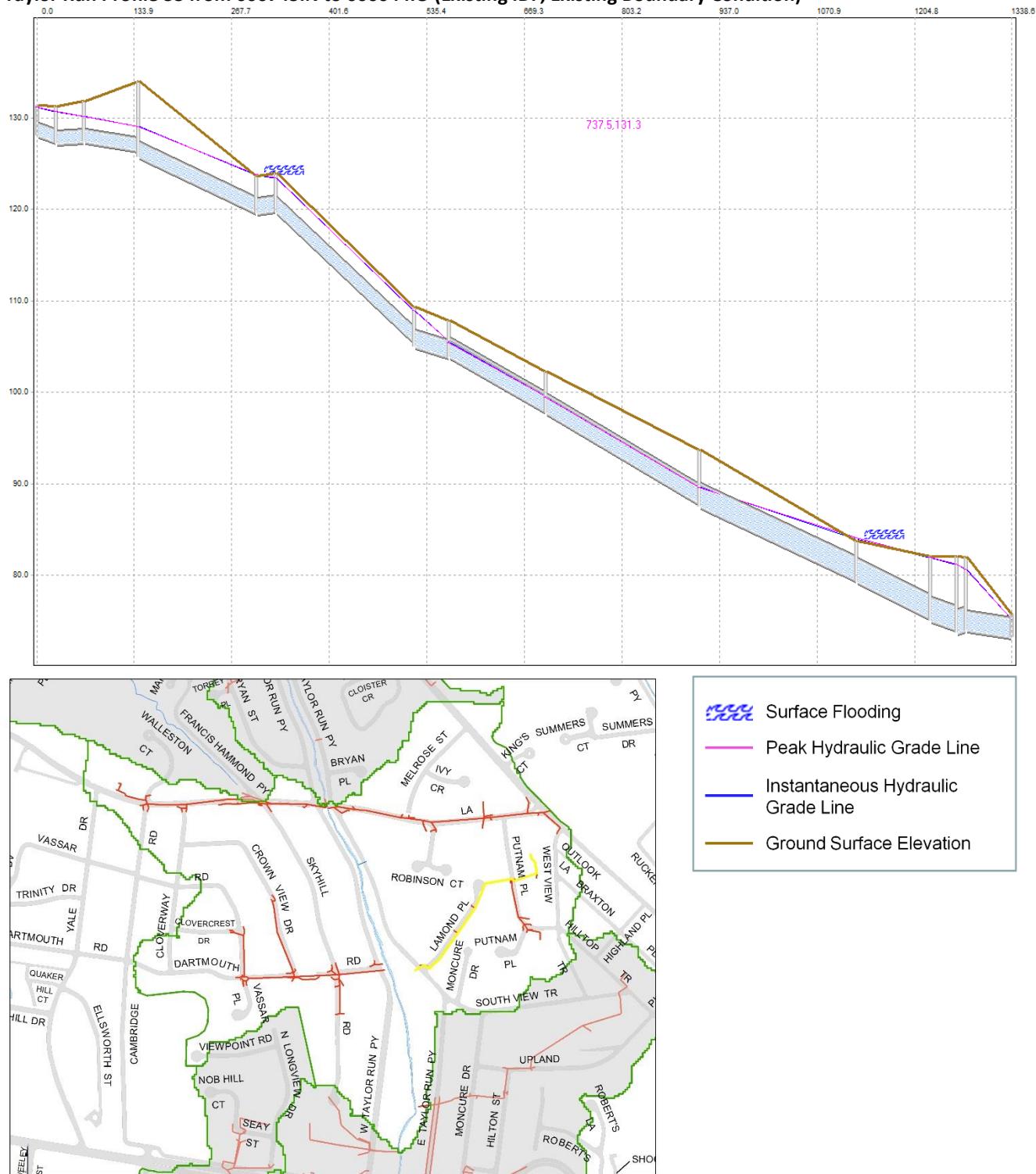


FIGURE 34

**Taylor Run Profile 34 from 000102ND to 000048IO (Existing IDF, Existing Boundary Condition)**

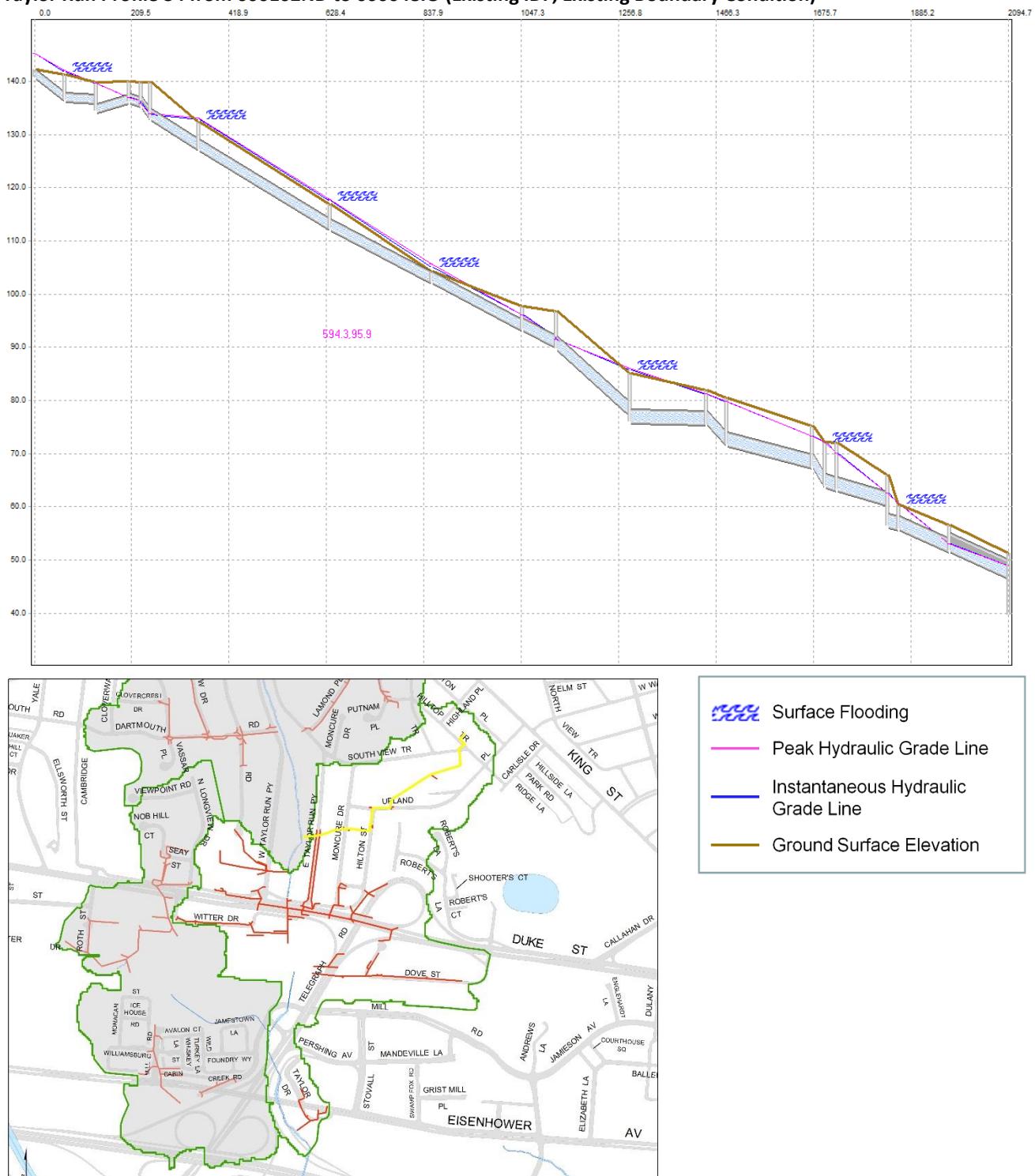


FIGURE 35

**Taylor Run Profile 35 from 000685IN to 000008ND (Existing IDF, Existing Boundary Condition)**

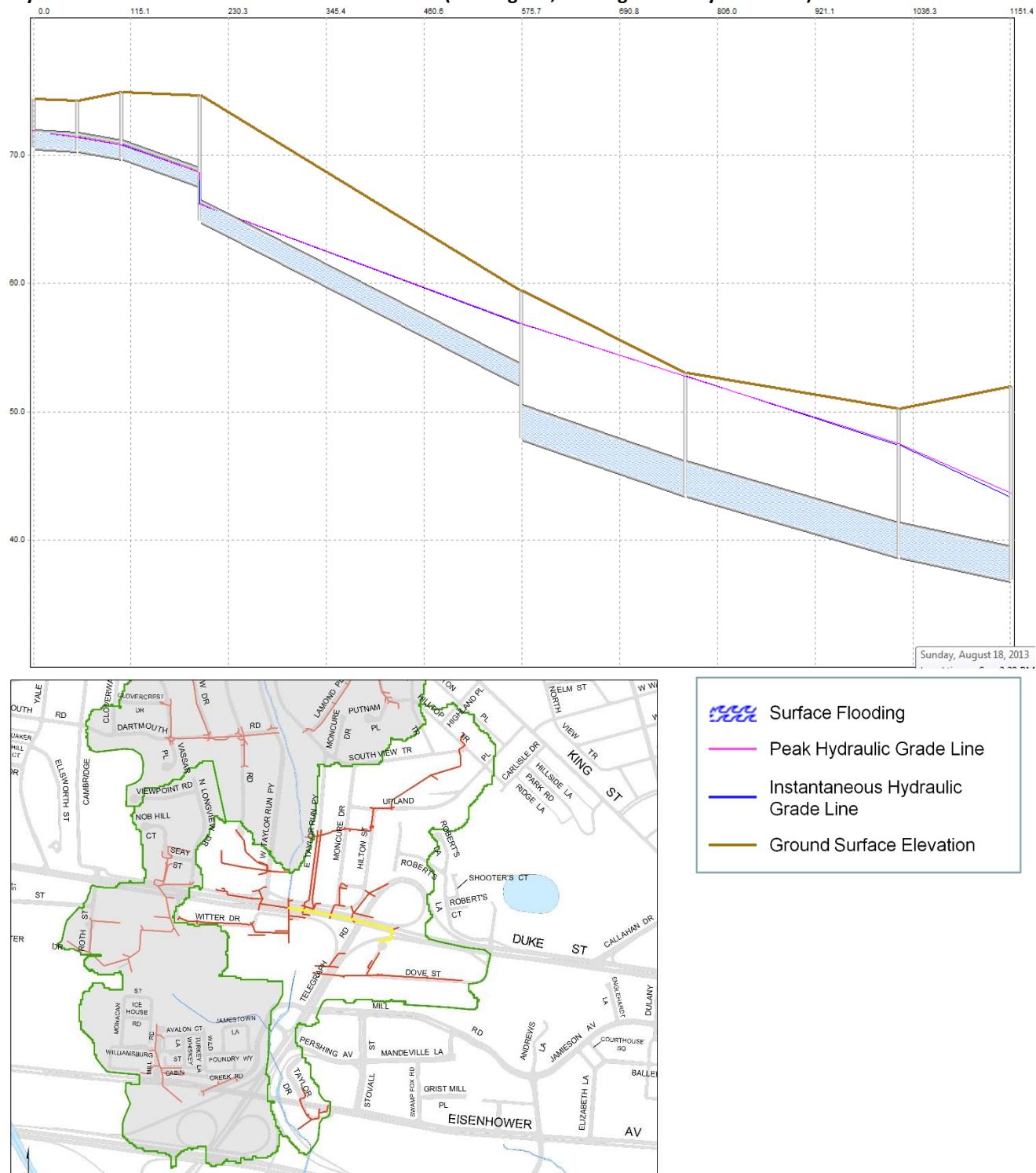


FIGURE 36

**Taylor Run Profile 36 from 000094ND to 000045IO (Existing IDF, Existing Boundary Condition)**

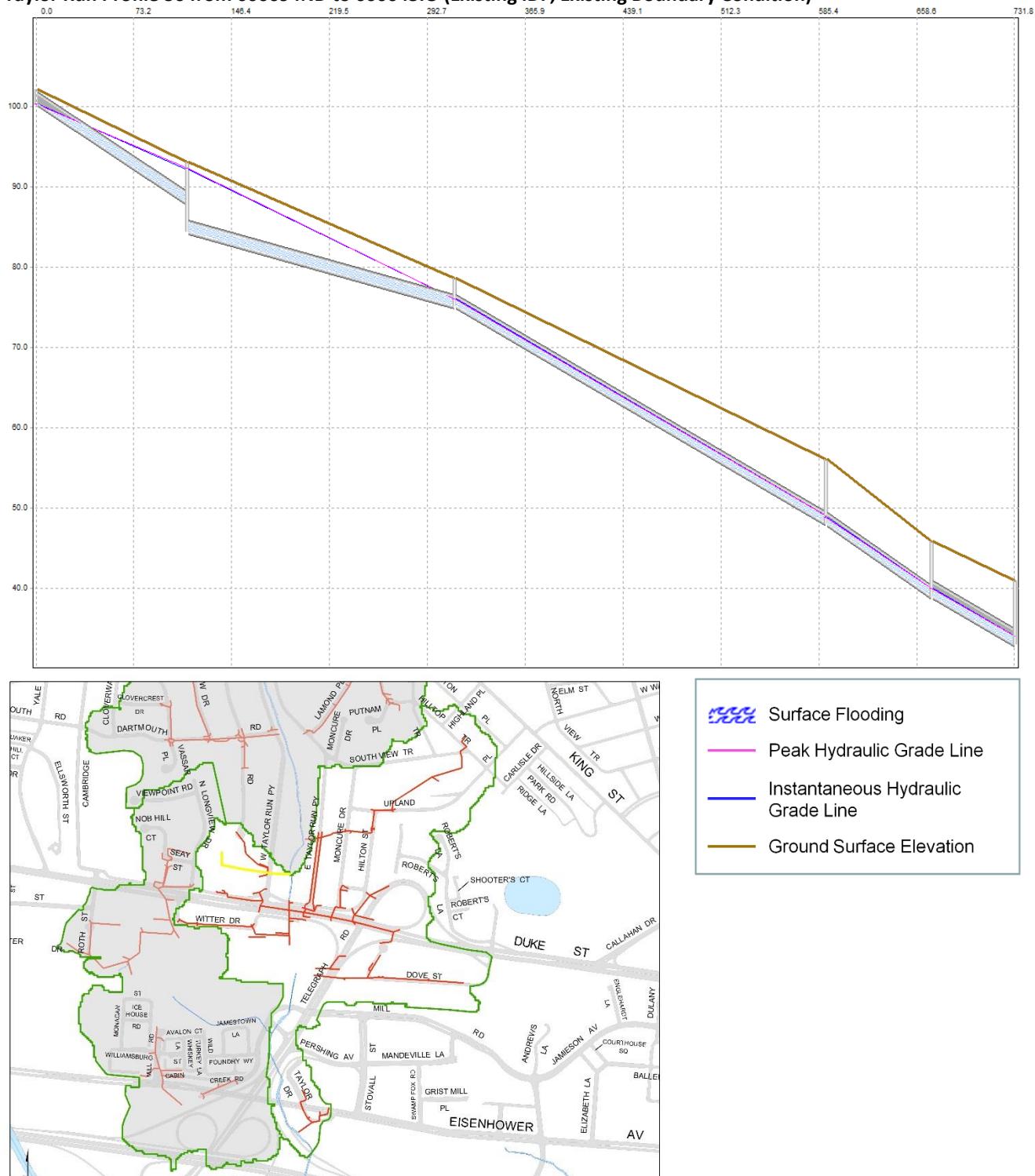


FIGURE 37

**Taylor Run Profile 37 from 000520IN to 000215SMH (Existing IDF, Existing Boundary Condition)**

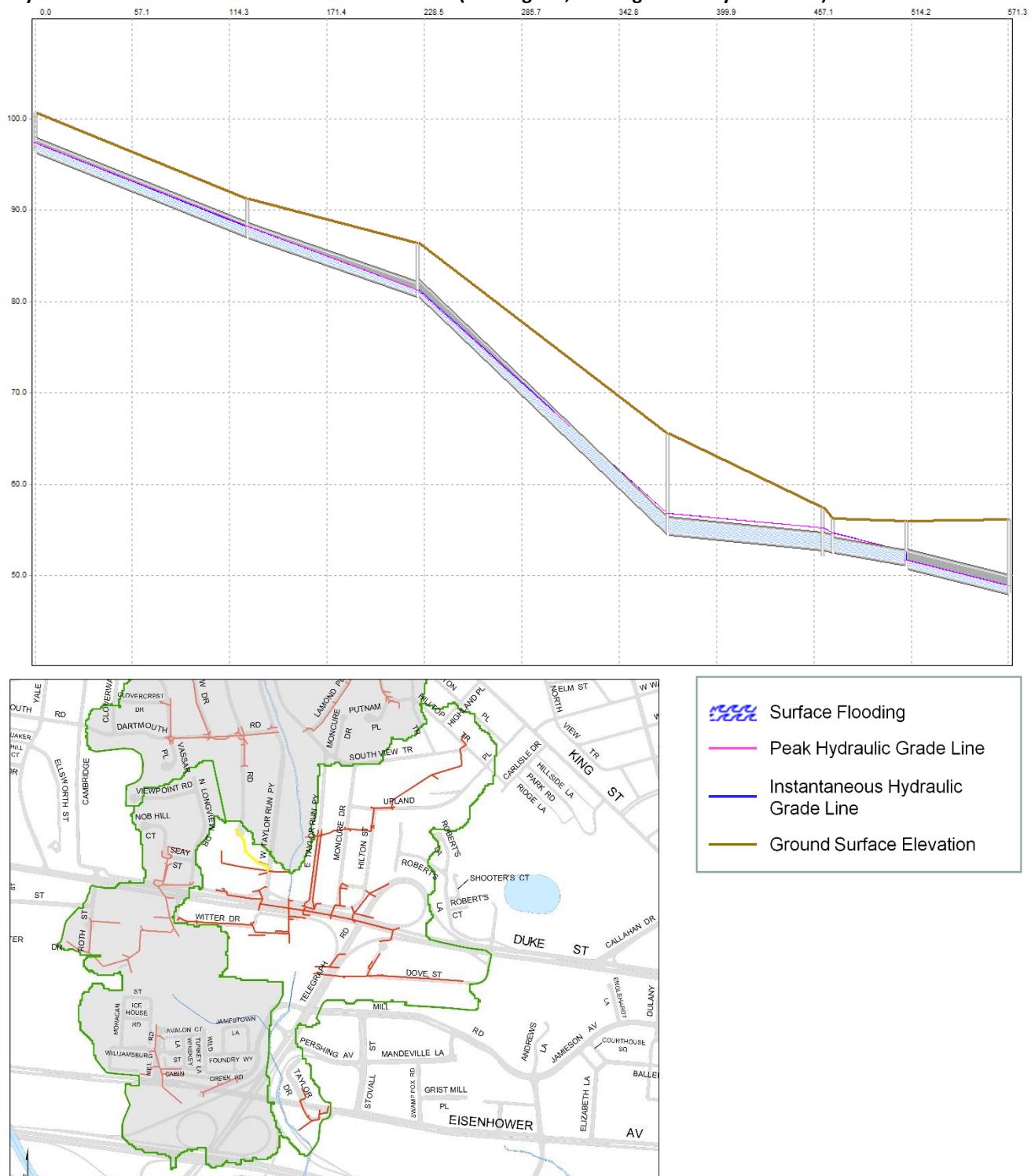


FIGURE 38

**Taylor Run Profile 38 from 000547IN to 000008ND (Existing IDF, Existing Boundary Condition)**

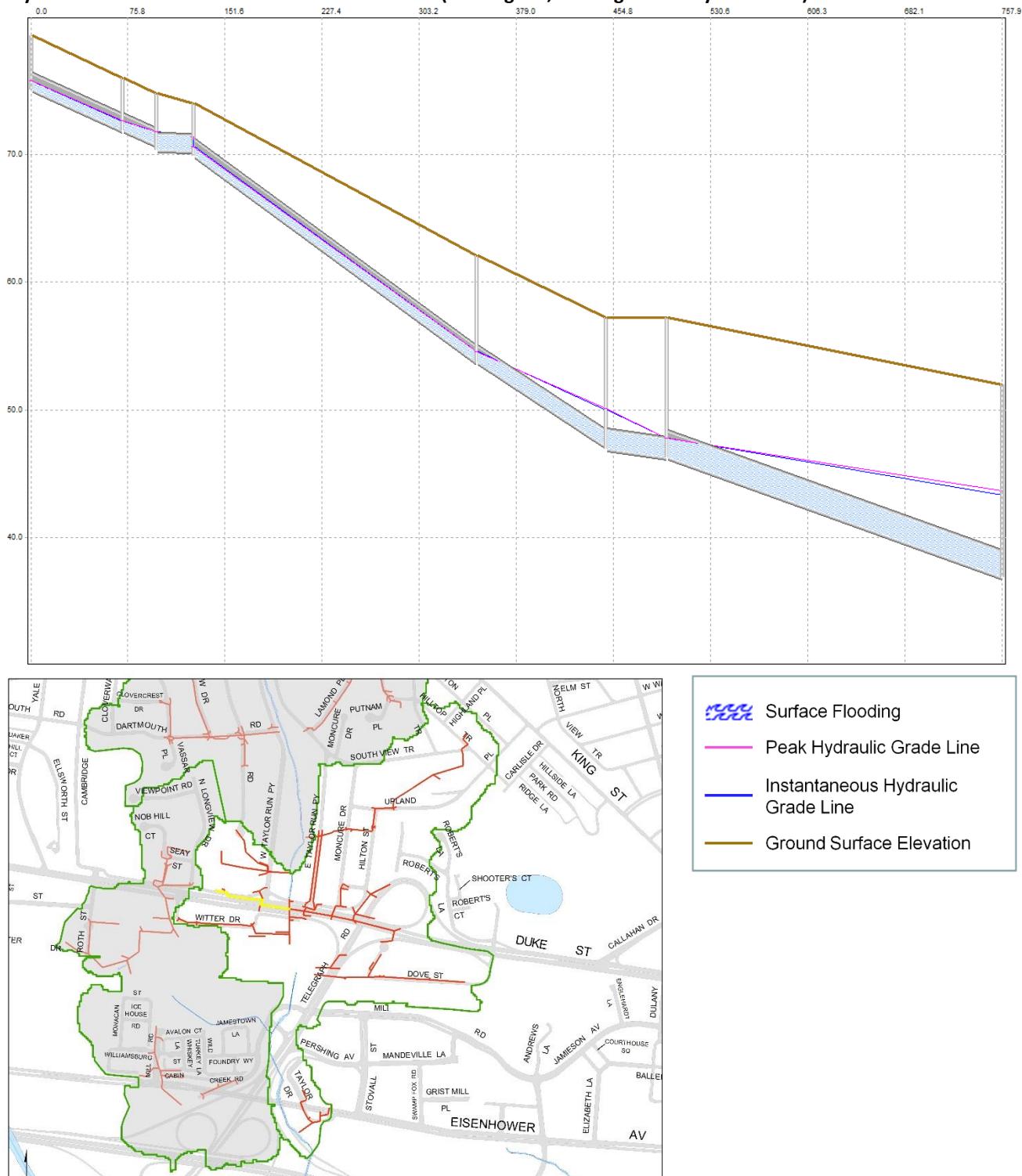


FIGURE 39

**Taylor Run Profile 39 from 000250SMH to 001202SMH (Existing IDF, Existing Boundary Condition)**

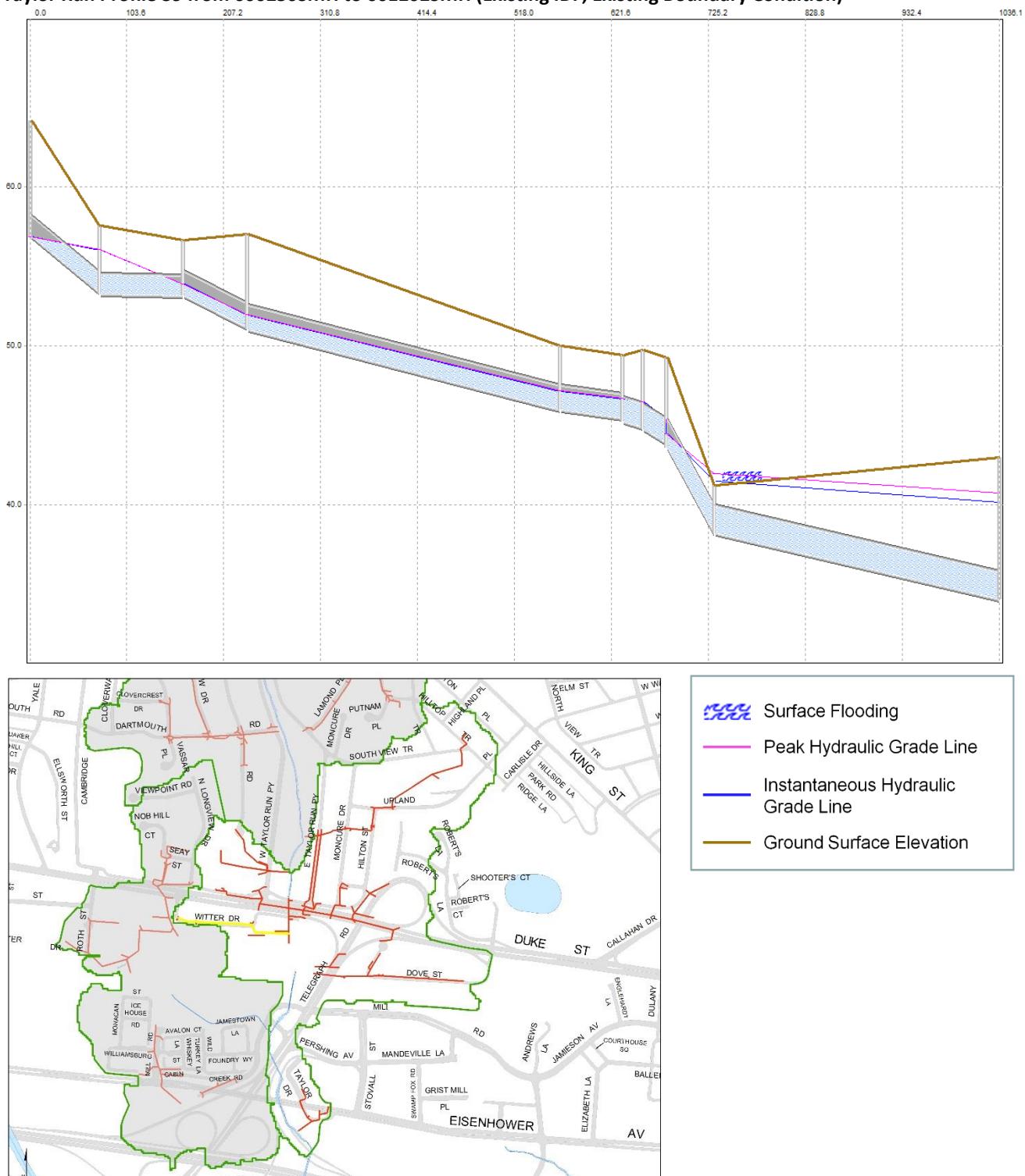


FIGURE 40

**Taylor Run Profile 40 from 004913IN to 000618ND (Existing IDF, Existing Boundary Condition)**

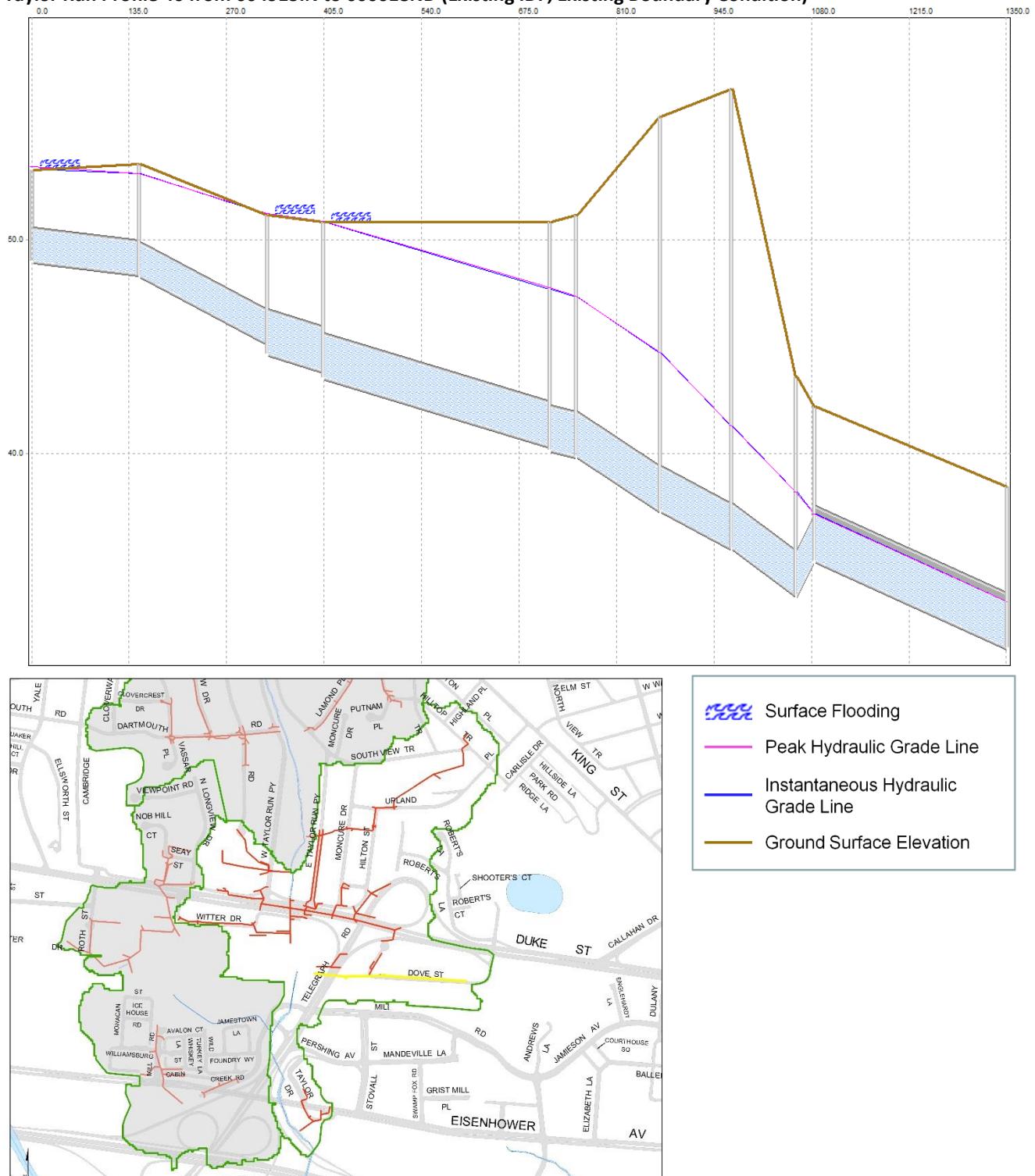


FIGURE 41

**Taylor Run Profile 41 from 000550IN to 000254SMH (Existing IDF, Existing Boundary Condition)**

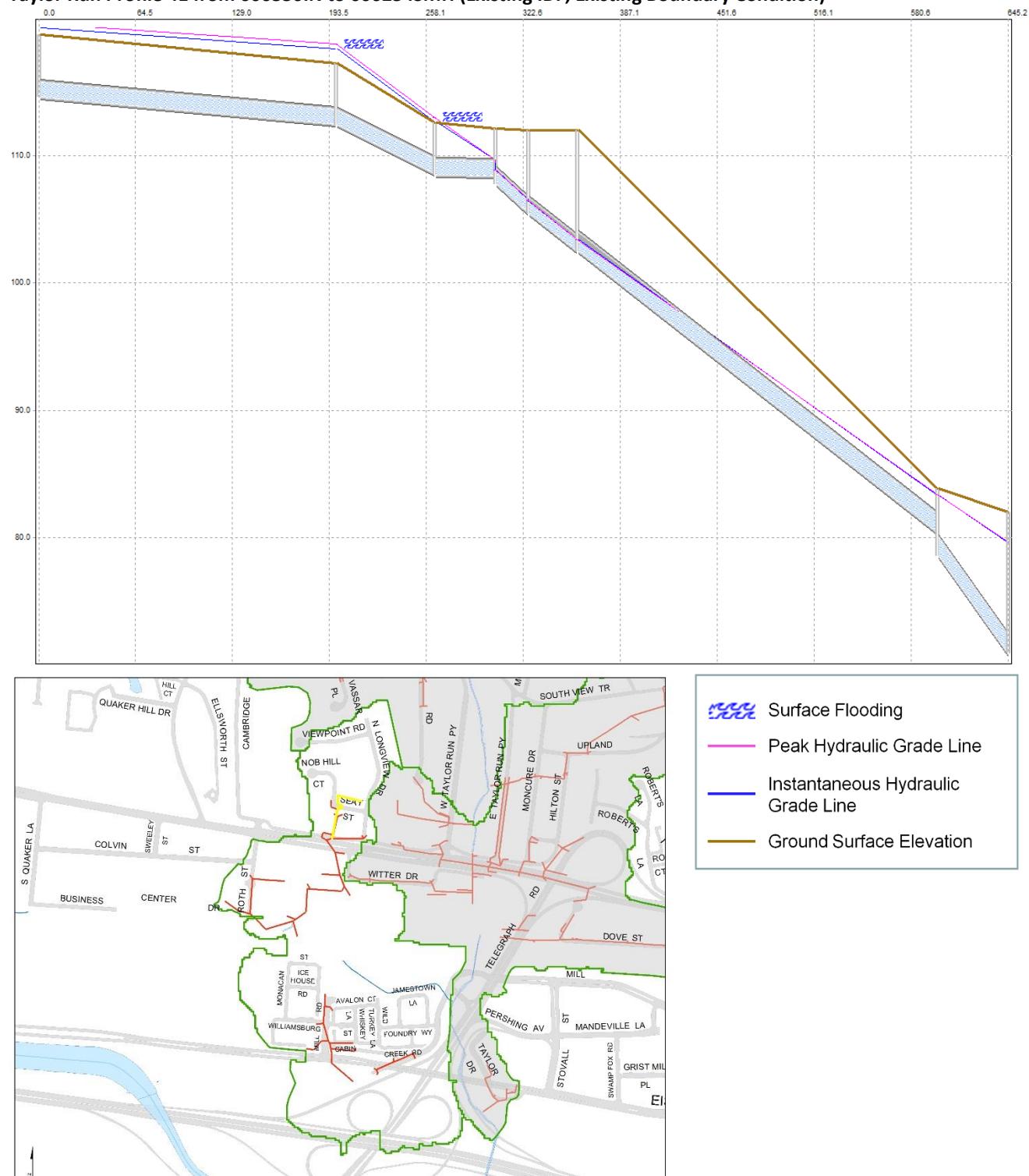


FIGURE 42

**Taylor Run Profile 42 from 000221SMH to 000172IO (Existing IDF, Existing Boundary Condition)**

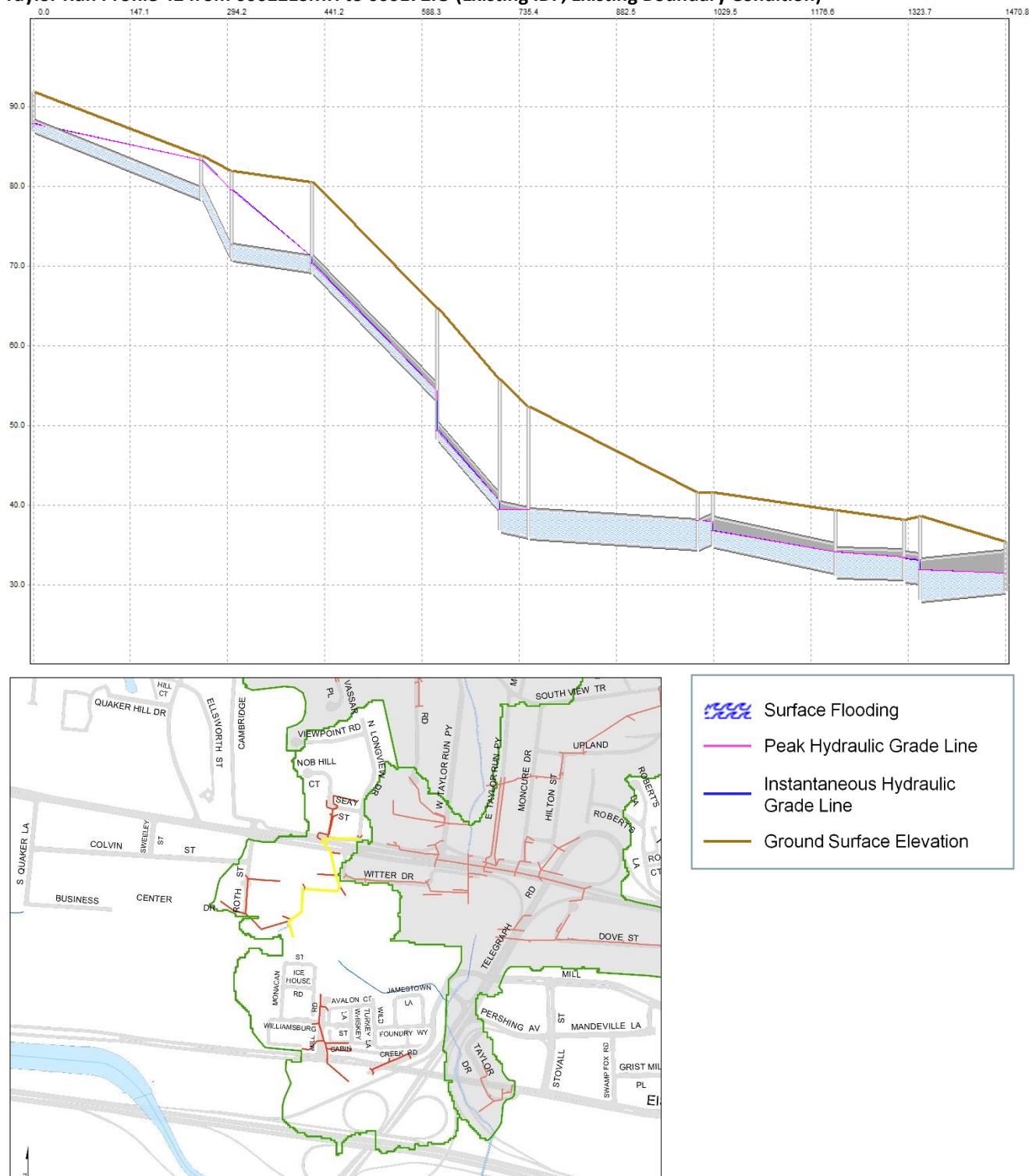


FIGURE 43

**Taylor Run Profile 43 from 002431IN to 000172IO (Existing IDF, Existing Boundary Condition)**



FIGURE 44

**Taylor Run Profile 44 from 001547SMH to 000335IO (Existing IDF, Existing Boundary Condition)**

